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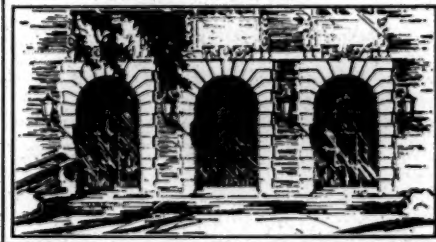


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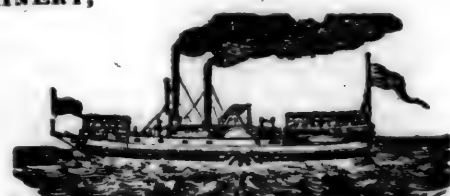
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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

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Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

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This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 11 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

#### TROY AND SCHENECTADY RAILROAD.

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Aug. 3, 1846.

1y 32

#### BALTIMORE AND OHIO RAILROAD.

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Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 1y13y1

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

#### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance.....56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance.....88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance....65 "

#### TIME.

From Buffalo to Sandusky.....24 hours.

Leave Sandusky 5 a.m. to Columbus....14 "

From Columbus to Cincinnati.....15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

#### FARE.

From Buffalo to Sandusky, Cabin.....\$6 00

" " " " Steerage.....3 00

" Sandusky to Columbus.....4 50

" " through to Cincinnati.....8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.  
M. & S. C. R. R. Co.

Sandusky City, Ohio.

#### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisiana, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiana only.

Leave City Hall for Harlem, Morrisiana, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 3 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

#### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
Arrives at.....9 a.m. and 6 1/2 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 1/2 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

#### FARE.

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12 1/2

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburgh via stage to Harrisburg.....25

Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg...3

In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

#### LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

#### SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

#### CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE, Gen'l. Sup't. Transportation.

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 30	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per bhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 19 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14  
STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearings and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.  
ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD, FROM AUGUSTA TO ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 150 miles.	Between Charleston and Oothcaloga, 386 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
a45 E. cor. 15th and Market sts., Philad., Pa.

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield.. 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
W. H. CLEMENT, Sup't.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**CLEVELAND, COLUMBUS AND CINCINNATI RAILROAD.** In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.  
A. G. LAWRENCE, Secretary.  
CYRUS WILLIAMS, Engineer.  
Cleveland, October 23, 1846. 45\*1m

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 90 ft. long.  
25 " 2½ x 1 " Flange Iron Rails.  
75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f



**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 ft, two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

##### PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

J. BALL & CO.

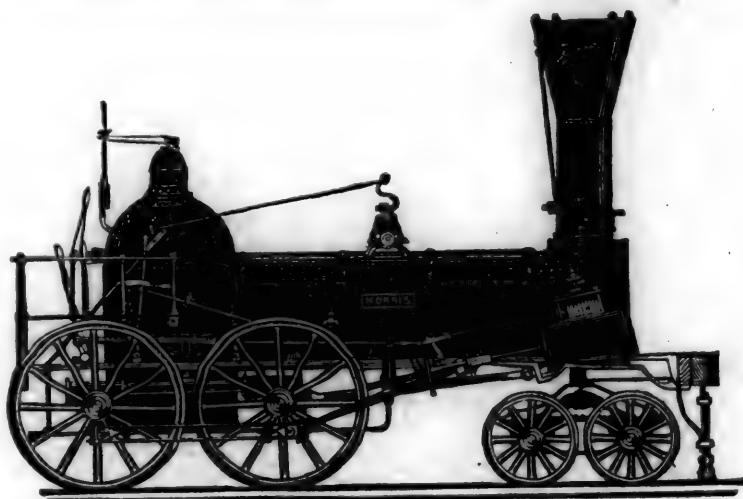
**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder, × 20 inches Stroke.
"	2,	14 " " " × 24 " "
"	3,	14 " " " × 20 " "
"	4,	12 " " " × 20 " "
"	5,	11 " " " × 20 " "
"	6,	10 " " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

#### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,

245 President of the Newcastle Manuf. Co.

#### RAILROAD IRON AND LOCOMOTIVE

Ryres imported to order and constantly on hand

A. & G. RALSTON

Mar. 20th 4 South Front St., Philadelphia.

#### KEARNEY FIRE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper, }  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }

William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly.

## "Railways at Home and Abroad."

THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)

(Continued from page 823.)

The expense of working has, from increased attention to economy, and from exciting, by promotion and rewards, the good conduct and efficiency of engineers and other persons employed, gradually diminished from year to year. In 1844, it amounted to £66, per mile; being fifty-one per cent. of the gross receipts. A net profit of forty-nine per cent. of the receipts remained, which amounted to nearly four per cent. on the capital.

The Belgian railways have been constructed and worked by her government, not with a view to revenue, but solely with reference to the advancement of the general prosperity and well-being of the population. The tariff for passengers and goods has, therefore, been so regulated that the profits shall not exceed the interest of the capital sunk. The present fares for passengers are as follows:

		Tenths of a penny.	
For 1st class pass. ....	14 8-10	per pass.	per mile.
2d do. ....	8		
3d do. ....	6		

By the returns given above, we find that the average receipt per head per annum from passengers was 19½d.; and, since the average fare per head per mile is seven and a half tenths of a penny, it follows, that the average distance travelled by the passengers is twenty-five miles. By comparing this with the result of the traffic on the British lines, the effect of the lower fares is apparent. The second and third class on the latter travel, on an average, distances of twelve miles; on the Belgian lines, they move twice that distance. On the Belgian lines merchandize supplies forty per cent. of the gross revenue; on the British lines it supplies thirty-seven per cent. The chief part of the revenue derived from passengers on the Belgian, as well as on the British lines, arises from short traffic. This, in effect, will be found to prevail generally, wherever railways are brought into operation. It follows from what we have proved above, that the great majority of travellers on the Belgian lines are those whose excursions are under twenty-five miles. The gross annual revenue per mile, on the Belgian railways, is only £1290, being less than half the amount received on the British lines. Yet the net profit on the capital is but little less.

By a system of most judicious and liberal management, these railways have been rendered eminently serviceable to the country in the transport of every description of merchandize.

Admirable arrangements are made for the safe, expeditious, and cheap delivery of every package and parcel at the address of the consignee, who is subject to no additional or arbitrary expenses whatever, beyond the amount of the tariff, which varies, of course, according to the nature of the goods; but in all cases is on the lowest scale. The effect of these measures has been conspicuously apparent in the rapid augmentation of this department of transport. In 1841, before they were matured, the total receipts for merchandize were

£19,000. In 1844 its amount was £177,800! Before the establishment of the eastern branch of the railway, the highest amount of heavy goods sent to the German frontiers, by the old conveyances, was twelve thousand tons; in 1844 the amount transported was sixty-seven thousand five hundred tons! In 1842, before the railway took the traffic, the amount of light goods was one hundred and ninety-four thousand tons: in 1844 it exceeded five hundred thousand tons.

Although this general cheapness of transit necessarily entails on the passenger trains a diminished speed, compared with that which British railway travellers are accustomed to enjoy, considerable expedition is nevertheless effected. The mean speed of the passenger trains, while in full motion, is estimated at twenty miles an hour, and the rate, including stoppages, at seventeen and a half miles an hour.

The progress of this new instrument of social and national advancement in France, has not hitherto been commensurate with the position and pretensions of that great country. How far this backwardness is ascribable to the genius of her institutions; or to the distractions to which her government has been exposed, and the engrossing nature of the political questions which have occupied her chambers since the revolution of July; or, in fine, to a salutary foresight and enlightened caution, which prompted the policy of waiting to profit by the errors, and reap the harvest of the dearly paid for experience of Great Britain, we shall not stop to inquire. Whatever may have been the cause, she has unquestionably before her advantages of no ordinary magnitude and importance, arising from it.

Previous to 1830, a few railways had been constructed and worked in some of the mining districts of France similar to those which had long been used in the northern counties of England. It was not, however, till about the year 1836, that the true character which steam transport on railways was destined to assume, began to reveal itself to her government. The wonders of the Liverpool and Manchester line had been noised abroad. Its expedition and cheapness were the theme of general conversation. It was, however, regarded as in some measure an exceptional case, and few believed in its capability of general application. It was not until the railway from Paris to St. Germain (twelve miles) brought these effects under the very eyes of the Parisians, that a true sense of the importance of this improvement in locomotion was excited. This was soon followed by the opening of several other short lines—such as those from Paris to Versailles, from Montpelier to Cette, and from Alais to La Grande Comte.

At length, the government being fully alive to the importance of this new way of internal communication, it was resolved, in 1842, that a system of railways should be planned and executed. With this view, it was determined that from Paris, as a centre, main branch lines should issue, to be directed to those points of the frontiers, by land and

sea, that should best serve the purposes of foreign commerce; and that the demands of the interior should follow in passing through it, and in the various ramifications which they should throw off. In accordance with this plan, six great lines would issue from the capital. The first, proceeding northwards to the Belgian frontier, would unite with the railways of that state, near Lille and Valenciennes. Branches from Amiens and Lille would communicate with the channel at Bologne, Calais, and Dunkirk: thus opening a rapid and easy communication with England, and affording a means of transit with the fifth commercial port, and the great granary of the northern section of the kingdom.

The object of the second great artery was to open a communication with Spain.—"When," said the minister of public works in 1838, "Spain, restored to tranquillity, shall be able to renew with France those commercial relations which must contribute so largely to the wealth of our southern departments, what great results may we not expect from a railway from Paris to Bayonne, carrying the fruits of our industry at a low price into the frontier provinces of Spain! What beneficial influences, also, may not this new way of communication exert upon the political relations of the two countries—relations which every day proves the necessity of rendering more numerous and more close!" This line was to proceed from Paris southward, through Orleans, Tours, Poitiers, Angoulême, and Bordeaux, to Bayonne, throwing off branches to Nantes and Vierzon.

The eastern line would pass through Champagne and Lorraine, connecting Paris with Strasbourg, and Bale, with a branch to Metz; thus forming a direct communication with the Rhenish frontier, and uniting with the system of German railways. It was expected by this to share that traffic which now flows through the Belgian lines from Antwerp and Ostend to the Rhine.

A line to be carried from Paris to Brest, through Rennes, would afford to the products of the western provinces a passage to the Atlantic; in addition to that afforded by the branch of the great southern line directed on Nantes.

Between the southern and eastern lines just mentioned, is included a tract of country more than one hundred leagues in width, occupied by a dense and industrious population, and covered with a fertile soil. To enrich this tract, easy ways of communication alone are wanting. It was, therefore, decided to carry through it another great central line, which should extend to the base of the Pyrenees, thus opening a way to Saragossa and the central parts of Spain.

Finally, the western line would be directed upon Rouen, with branches to Havre and Dieppe; thus completing the system of communication with the ports of the channel and the Atlantic.

Such were the lines designed to issue from Paris as a centre. It was determined to complete the great communication of the country by two main lines proceeding from Marseilles, one leading to the Atlantic at Bordeaux, and

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the other communicating by Lyons with Switzerland, Alsace, and Northern Germany; and running into the eastern line from Paris at Dijon.

By the line from Marseilles to Bordeaux, it is intended to join the Mediterranean with the Atlantic, to put in close connection the two chief ports of France, and to aid in restoring to Bordeaux its former importance. This line will throw out two branches on Tarbes and Perpignan, by which the communications with Spain will be completed.

By the line proceeding from Marseilles to the east, it is intended to supply a means of internal transport for the commerce of the Levant; which has been hitherto supplied to Europe chiefly through the port of Marseilles. The line of railway from Vienne to Trieste, carried, as it will be, through the heart of the German states, and having unbroken communication with the Baltic and the Northern seas, threatens to divert the Levant trade from Marseilles to Trieste. The line to which we now advert is designed to avert this loss.

Such is the system of railway communication which has been projected in France. Let us now see what progress has been made in its realization.

It appears by a statement published by M. Teisserenc, a member of the Superior Railway Commission, and which may be considered as having an official character, that at the end of 1844, the total length of the railways open to the public, in progress of construction, and projected and recognized by the legislature, but not commenced, was as follows:

Open for commerce .....	537
In progress of construction .....	1837
Planned .....	961

Total length of the contemplated system.....3335

The total amount of capital absorbed by the 537 miles then open, was £1,464,000. The average capital per mile was, therefore, £2,134.8. Assuming that the remainder of the system will be constructed at the same rate, which will probably be the case, the total amount of capital invested will be £71,195,580. Since the end of 1844, nearly 300 miles more have been opened for traffic; and it is expected that at the end of the present year, 1846, the total length of French railways open for commerce will be nearly 1000 miles.

To find the general financial averages resulting from the operation of the French railways, we have taken four hundred miles of those which have been used a sufficient time to afford the annual returns; and the results are as follows:

Total cost of construction and material per mile .....	£21,400
Gross annual receipts per mile .....	2,114
Annual expenses per mile .....	1,106
Annual net profit per mile .....	1,008

Taking these amounts in proportion to the capital sunk, and to each other, we find:

Annual receipts .....	10	per cent. of capital sunk.
Annual expenses .....	52	per cent. of receipts.
Annual profits .....	48	per cent. of receipts.
Profits .....	4 7-10	per cent. of capital.

It appears, therefore, that the average net

profit on the capital invested is about 4½ per cent., and that a little more than half the gross receipts go to defray the current expenses of the lines.

In comparing these conclusions with the current returns of particular lines, it is necessary not only to remember that they are average results, but that the final condition of each line fluctuates from year to year.—Generally, the best lines give improving returns.

When the entire system as designed by the state has been completed, the following results must ensue, in order that the capital to be invested may produce a net 5 per cent. annual profit:

Capital invested in 3335 miles at £21,195,580	£71,195,580
348 per mile .....	7,416,203
Gross and annual receipts .....	3,846,427
Gross and annual expense .....	2,550,784
Net annual profits .....	

The population of France being thirty-four millions, this will require an annual expenditure of £218,000 on railway transport, for every million of inhabitants.

The legislature has fixed the major limit of the fares chargeable to passengers as follows:

	Tenths of a penny.
1st Class, per passenger, per mile .....	16
2d " .....	13
3d " .....	8.8

The companies are obliged by law to supply covered carriages, with curtains at the windows, for third class passengers. These carriages are decidedly superior in convenience and comfort to the second class carriages on the British railways. Taking the returns of the traffic of the principal lines now in operation, we find that the average sum received from each passenger is 20d.—Now if we take the average fare per head per mile, at twelve-tenths of a penny, we shall find that the average distance which each passenger travels in twenty-five miles. Short passenger traffic is, therefore, the main source of the railway revenue here, as elsewhere.

The proximity of Belgium and France has necessarily rendered the British public more or less familiar with the extent of the system of railways already in operation in these states. Few, however, have any distinct notion of the advancement of railway transports in the other states of Europe, and still fewer of the vast system which is designed to be executed by the Germanic states; of which a very considerable part is already in a forward state of construction. Although these states are united by community of manners, race, and language, yet, being under different sovereigns, and subject to different administration, they have not proceeded with this great improvement with that unity of design which has marked the proceedings in France.—Each government has acted for itself independently of the others. Nevertheless, partly from the physical character of the countries, and partly from the distribution of the population and seats of industry, and a consequent harmony of interests, these separate and independent measures have of themselves assumed a considerably uniformity of plan; and the Germanic states will, ere long, be

overspread by one of the most magnificent systems of interior communication of which Europe can afford any example.

The Austrian system consists of what may be called four great arteries or lines, which meet at Vienna; and from thence proceed north, south, east, and west. The southern line, passing through Gratz and Laybach, terminates at Trieste. The northern directs its course by Prague, on the frontiers of Saxony, throwing off a branch to form a union by Olmutz with the great line through Prussian Silesia. These two lines, running north and south, are destined to form part of a more extensive medial line, by which the Adriatic will be united with the northern seas.—The two arteries which run east and west will connect Vienna with the confines of Hungary by Pesth and Debreczin, and with Munich, by Lintz. By these a profitable communication will be opened with those rich and hitherto inaccessible tracts of eastern Europe intersected by the valley of the Danube, possessing vast pasturages, regions fertile in wheat, maize, and rice, flourishing plantations of hemp and tobacco, and extensive vineyards.

Nor has Austria neglected to extend similar improvements to her Italian possessions. A line of railway, measuring nearly two hundred miles, will traverse the Lombardo-Venetian territory, connecting Venice with Milan, and communicating by easy steam navigation with the terminus of the great northern and southern line at Trieste. That the Austrian government may have been moved to confer this great benefit on northern Italy by other motives than those of a desire to promote the well-being of its people, is very possible; but, be this as it may, results greatly beneficial to them must ensue.

We here annex a view, taken from recent documents, of the actual state of the railways within the Austrian dominions:

	Total length Miles.	Complete and open for commerce Miles.
Vienna to Trieste (finished to Gratz) .....	335	148
Northern line .....	497	190
Vienna to frontier of Bavaria .....	194	16
Eastern line .....	311	84
Venice to Milan .....	190	19
Vienna to Timan by Presburg .....	51	51
Grunden to Prague by Lintz and Budweis .....	286	156
Budweis to Prague .....	71	
Total .....	1935	664

In the system of railways projected by Prussia is apparent the combined views suggested by the military traditions of its former sovereigns, and the commercial spirit of northern Germany, of which it is the centre. To throw its distant provinces, bordering on the constitutional states of Belgium and France, in more immediate relation with the central government, lines issuing from Berlin will rest upon the Rhine at Cologne and Frankfort-on-the-Maine; the one communicating with the network of Belgian lines, by the railway to Aix-la-Chapelle, and the other with the French lines by the railway of the Taurus. The former is completed, with the exception of the line between

Cologne and Minden. Another main line issues from Berlin eastwards, directed towards Russia and the Polish provinces, by Frankfort-on-the-Order, Posen, Dantzic, and Konigsberg. The line is in a forward state of progress.

There are three other lines partially or totally executed. Two proceed from Berlin to Hamburg and Stettin respectively, and the third will put the capital in immediate communication with Silesia, and unite with the great northern Austrian line already mentioned. It is in this way that the continuous communication between the Mediterranean and the North Sea and the Baltic will be completed.

	Total length. Miles.	Length open for traffic. Miles.
Berlin to Stettin.....	89.....	89
" to frontier of Saxony....	94.....	94
" to Austrian frontier by Frankfort and Breslau.....	323.....	240
Breslau to Saxon frontier.....	66.....	25
" to Fribourg.....	36.....	36
Berlin to Potsdam and Magde- burg.....	80.....	16
" to Hamburg.....	174.....	
Leipzig to frontier of Brunswick	110.....	110
Cologne to Belgian frontier....	54.....	54
" to Bonn.....	20.....	20
Dusseldorf to Elberfeld.....	17.....	17
Total.....	1063.....	701

Besides these, which are already planned and in actual progress, there are several other lines in contemplation by the Prussian government. Among them may be mentioned a more direct line from Berlin to Dresden, by Iuterbogt and Riesa; the line from Cologne to Minden, and the line from Lippstadt to Cassel.

We have lately seen the traffic returns and other accounts, to 31st December, 1845, of eleven principal Prussian lines, which were open throughout that year—the total length of which is 600 miles. The total cost of constructing these has been \$5,640,000, being at the rate of £9400 per mile. The gross receipts for passengers was £306,570, and for merchandize, £179,980. The number of passengers booked was 5,006,814. The amount, therefore, received per passenger was 191. Thus the average distance travelled by each passenger does not exceed twenty miles—showing again that short fares are the main source of railway revenue. The quantity of merchandize transported was 475,000 tons, for which £17,980 were paid; being at the average rate of 7s. 6d. per ton. Taking the average rate of the traffic at 2½d. per ton per mile, this would show that the average distance to which the goods have been transported was thirty-six miles. The expense of working these lines was £285,000, which, deducted from the gross receipts, left a net profit of £201,550, giving a dividend of 5½ per cent. on the capital: a portion of the expense of constructing the lines was defrayed by loans obtained at 4 per cent.

The Bavarian system of railways consists of three great trunk lines, which intersect the kingdom in different directions. The first rests at one extremity on the Lake of Constance, at Lindau; and at the other, unites with the Prusso-Saxon system at Hof—tra-

versing in its course, Augsburg, Donauworth, Nuremberg, and Bamberg. A great portion of this line is open for traffic. The second line crosses the kingdom east and west; joining, on the one side, the railways of Wirtemberg and Baden, and on the other, those of Austria. The third great line issues from Bamberg to Frankfort-on-the-Maine, where it unites with the numerous systems centering there.

Of this system of lines, the total length is 573 miles. Length of the part open for commerce... 159 "

The enlightened zeal of the present monarch of Bavaria for every improvement which tends to advance the arts and civilization, is well known. He appropriates each year, to the construction of this system of railways, a considerable revenue saved from his privy purse, and the public revenues of his kingdom.

The measures adopted by the more considerable of the Germanic states for the establishment of improved means of internal commerce, necessarily gave a corresponding impulse in the same direction to the smaller ones. Saxony and Hesse have undertaken the continuation of the great northern Bavarian railway from Hof to Leipzig by Dresden. Lines are also in progress connecting Dresden, Gorlitz, Chemnitz, Riesa, Bamberg, and Eisenach: also Dresden with Prague, Cassel with Frankfort-on-the-Maine, Lippstadt, and Hanover. These small states have planned above a thousand miles of railway; more than one-fourth of which is completed, and open for commerce.

The smaller northern states—Hanover, Brunswick, Mecklinburg, and the Hanse Towns—have not been backward in contributing their quota to this vast work. By a law passed by the legislative chamber of Hanover in 1842, the construction of a system of railways in that state was decided on. The main line is to run east and west, connecting Hanover with Brunswick, Magdeburg, and Minden. Another is directed northward upon Hamburg by Luebourg and Zell; another northwest on Bremen, and a short line to unite with the Cassel railway. These lines are all in a state of advancement, and considerable parts are already open for commerce.

In the Duchy of Brunswick, with a population not greater than an eighth of that of the British metropolis, there are already seventy-five miles of railway completed, or nearly so. The Duchy of Mecklinburg is traversed by the main line of railway from Berlin to Hamburg, and by a branch connecting Weimar with Berlin by Schwena and Boetzenburg.

The Hanse Towns form a common centre for most of these lines; and in immediate connection with them is the important line from Altona to Keil, with branches on Schleswig and Tonningen.

The total length of railways projected in these smaller states is 700 miles; of which about one-third is open for traffic.

To complete this view of the German railways, it remains to notice those of Baden, Wirtemberg, and the free city of Frankfort.

The great Baden line runs parallel with the Rhine, forming the continuation of the line from Cassel through Frankfort and Darmstadt. This line, which terminates at Bale, passing through all the chief towns traversed by the Berg Strasse, and lying between the Rhine and the Black Forest, is open for traffic throughout nearly its entire extent. Its object is to facilitate the communications of Germany with Switzerland and Italy. Another line, traversing Wirtemberg from south to north, issues from Frederickshofen on the Lake of Constance, meets the Austro-Bavarian line at Ulm, and, passing through Stuttgart, terminates at Heidelberg, where it unites with the great Baden railway. Thus will be united Vienna, Munich, and Stuttgart, the three capitals of southern Germany; while a similar chain of lines unites Berlin, Warsaw, Dresden, Hamburg, and other capitals of the north. The total length of railways projected by Baden, Wirtemberg, and Frankfort is 500 miles, of which above 200 are completed.

According to the work of Baron Von Reden, to which we are indebted for much valuable information concerning the railways of his country, the entire system of Germanic lines, when completed, will consist of 1600 German lines, equal to 7600 British miles of railway. At the close of 1845, the part of this open for traffic was 4760 miles.—When the system shall have been completed one third will have been constructed by the state, and two-thirds by companies under the authority of, and subject to, the control of the state. The total amount of capital absorbed by this great undertaking will be £74,793,600, being very nearly at the rate of £10,000 per running mile. The average cost of the part already constructed has been very little above £8000 per running mile.

The low cost of construction, as compared with the railways of France and England, is due, in a great measure, to the low price of the land, and the inferior rate, generally, of the wages of common labor. On the other hand, however, the German states have to struggle with peculiar disadvantages. The country, in many places, has presented formidable engineering difficulties. The rails and road materials generally, as well as the machinery and the mechanicians, have to be imported from England and Belgium, and even from the United States of America.—And the favorable circumstance of cheap hand labor has been, in some degree, done away by the demand for it, created by the railways themselves. In 1844, eight millions of laborers were employed on the German railways; and their wages had then risen thirty-three per cent. Still the works proceed with speed and activity.

A movement affecting in so many important respects the social condition and commercial relations of states, could not take place among those to which we have adverted, without being shared more or less by the other countries of Europe, Russia, Denmark, Holland, Switzerland, the Italian states, and even the Peninsula, have shown signs of their consciousness of the expediency of some



similar undertakings. Several of them have already taken active measures in the construction of lines through their respective territories; and those which have not gone so far have caused surveys to be made, and other preliminary steps to be taken. Sweden stands alone quiescent among the nations of Europe.

The system of Russian railways projected, and in progress of construction, consists of principal lines. The first will be carried from St. Petersburg to Warsaw, and thence to Cracow, where it will unite with the northern chain of German lines; thus opening a continuous communication with all the chief cities of central Europe. Of this line, a large part of the section between Warsaw and Cracow is completed, and the remainder in a forward state of progress. The second line will connect Petersburg with Moscow; this is nearly completed. The third line will be the continuation of the Austro-Hungarian line to Odessa. The fourth line, intended for goods only, will connect the Volga and the Duna. The total length of this system of railways will be sixteen hundred miles.

The example of Belgium necessarily attracted the attention of Holland to the subject of railway communication, and suggested the policy of at least attempting to share that German traffic which was established between the northern country and the sea, by the Belgian and Prussian chain of railways. The Dutch Chambers were not, however, as keenly sensible of these advantages as the sovereign, and decline to give the desired legislative encouragement, to such enterprises. Under these circumstances, William I. gave his personal guarantee to a company which undertook the line from Amsterdam to Rotterdam; which was opened in successive sections to Harlem in 1839, to Leyden in 1842, to the Hague in 1843, and Rotterdam in 1844. The length of this line is fifty-three miles, and is laid down for a double line of rails; one line, however, being only laid for the present. The cost of the line (with two lines of rails) will be little more than £5000 per mile, exclusive of the stock. This low cost is owing to the easy nature of the ground, which requires no engineering works of any considerable cost.

To be continued.

#### Iron Ore in Maine.

Dr. JACKSON, in a late report of his Geological Surveys in the state of Maine, alludes to an iron mine at *Raymond*, in Cumberland county. At this time, says the Advertiser, when the subject is exciting the attention of the community, his views are worthy attention. The doctor says:

Raymond, on the borders of Sebago Lake, was our first stopping place for the first day's route. Here we proposed examining an iron mine of some note, and to explore the vicinity for other useful minerals.

Specimens of magnetic iron ore, from Davis' Hill, in Raymond, having been sent to me for analysis, I was desirous of examining the locality where it was found, for the purpose of ascertaining whether a sufficient quantity of the ore could be obtained to render it of economical value. At my request,

several gentlemen of Raymond accompanied me to the spot, which is a mountain situated in the northeast part of Raymond, six miles from Sebago Lake and three quarters of a mile northwest from the head of Great Rattle Snake Pond. The hill is an abruptly precipitous mass of rocks, covered with a scanty soil, bearing a few small forest trees, and attains an elevation of 371 feet above the level of Rattle Snake Pond. The rock which contains the iron ore, is a huge bed of green epidote rock, containing also many scattered crystals of black hornblende, and the iron ore occurs in sheets of veins, closely implanted, measuring from one to four inches in thickness. They are closely attached to the rock, and were evidently formed at the same time with it, since they are so intimately blended. Owing to this close attachment, it is difficult to extract the ore without quarrying out large portions of the matrix, which in working should be broken off, so as not to encumber the furnace with useless matter.

There is evidently a sufficient quantity of the iron ore in this mountain to supply a blast furnace, but it will cost much labor to extract it from the rock. I would not, however, abandon the locality, without making a trial of the quantity of picked ore which a laborer can blast out and clean for the furnace in a day; for if it should prove that one man can earn fair wages at the work, as many hands can be employed as might be required—for there is ample room on the face of the cliff for all the laborers that might be necessary, since the bed is nine rods wide, and exposes the iron ore along its whole breadth. By chemical examination, it appears that the ore will yield, when free from the rocky matrix, seventy per cent of iron, and I should think that, picked as clean as might be required, it would give about fifty per cent. of cast iron, if wrought in the blast furnace. Should a less expensive investment be required, a bloom forge might be erected, and I have no doubt but an ample supply of the ore could be obtained to keep it in operation. Compact magnetic iron ore like this, work more easily in the forge than they do in a blast furnace, for they are so heavy as to overload the latter. In case a forge should be erected, it will be necessary to break the ore small before throwing it upon the fire, and if it is first roasted it will crush more readily. It may also be completely picked from its gangue, by means of a rotary wheel, made up of horse shoe magnets, as is done at some of the furnaces in New Hampshire.—Water power may be readily obtained near the hill, by means of a dam thrown across the stream from Dumping Pond; a head of ten or fifteen feet of water being, as I am informed, easily produced by this means.

Wood on the spot is worth seventy-five cents per cord, delivered, or twenty-five cents per cord for standing trees, and fifty cents for cutting and hauling to foundry. Lime-stone abounds in the town of Poland, six miles from this mine, and may be obtained for a flux in smelting the ore.

Transportation to Portland costs four dollars per ton, for ordinary merchandize; but

the iron being less bulky, could be carried for a less price. It may be carried upon the canal by hauling it six miles to Sebago Lake; or in winter, it may be transported upon sleds.

From the above elements, any iron master can readily calculate whether it would be profitable or not for him to work the Raymond iron ore.

#### Railroads in England.

The first railroad which was completed, and opened in Great Britain, for travel and the conveyance of merchandize, was the "Liverpool and Manchester" line—thirty miles long. It was completed in 1830. The extension of the system in Great Britain will be found below—in tabular form—and will be read with interest:

	Miles of railway.	Number of passengers carried.
1830.....	30 .....	.....
1840.....	1300 .....	12,000,000
1841.....	1550 .....	20,000,000
1843.....	1800 .....	26,500,000
1845.....	1900 .....	30,000,000

These roads cost three hundred millions of dollars, and most of them paid a large profit, so that the stock rose in the market to double the cost.

In 1845, 300 miles of new roads were put in operation and 1800 more undertaken.

The average cost of the roads completed has been \$168,000 per mile.

The items of this cost have averaged as follows:

Cost of land .....	\$19,200
Way and work .....	105,600
Office and sundries .....	4,800
Locomotive power and working stock ..	38,400

The cost of the wide gauge was more expensive, the 240 miles in operation having cost \$192,000 per mile.

What has been the service to the public and the revenue to the owners produced by these railroads?

The traffic for the three years ending 30th June, 1845, was as follows:

Year.	Miles of railway opened.	Receipts from passengers.	Receipts from goods.	Total.
1843..	1794..	\$14,929,233.	\$6,839,673..	\$21,768,907
1844..	1912..	16,508,611.	7,848,824..	24,348,435
1845..	2118..	19,086,435.	11,200,190..	30,286,625

From this table is deduced the following:

Year.	Am't passenger fare per mile.	Am't increase per cent.	Am't of goods per mile.	Ann. inc. per cent.	Total per mile.	Annual increase.
1843..	\$4,299..	...	\$3,781..	...	\$12,080..	...
1844..	8,510..	2.55..	4,110..	7.90.	12,620..	5.20
1845..	9,009..	5.87..	5,284.21.	34.	14,254..	10.70

The cost of running these roads averages about 42 per cent. of the gross revenue. The revenue from passengers is 63 per cent. and from freight 37 per cent.

The average distance travelled by each passenger in the year ending 30th June, 1845, was as follows:

	Miles.
1st class .....	26.7
2d class .....	13.4
3d class .....	11
Mixed .....	24.4
Mean distance .....	15

This proves that most of the money comes from the way travel, and from persons who travel but very short distances.

The saving to the public in travel is estimated in the Edinburgh Review, for the year 1844-5 at \$33,253,776. This embraces fare, time and tavern expenses.

#### (Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Dec. 28, 1844.	Dec. 27, 1845.	Dec. 26, 1846.
Travel .....	\$1,551 82	\$2,041 35	\$2,536 14
Freight on goods ..	777 13	1,913 94	2,523 13
"    coal .....	2,402 10	5,908 93	21,849 38
	\$4,431 05	\$9,864 22	\$26,908 64
Coal trans.—tons.	2,139	6,095	15,422

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, January 3, 1847.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2. [14] 65 Broad St., New York.

### The Railroad System and the Railroad Journal.

As the one prospers, so prospers the other. Few of those now interested in the success of the railroad system, appreciate fully its influences, and its probable extension. Nor, indeed, are there many, who have witnessed its progress from its first introduction, who can refer to their "Journal" of passing events and trace its astonishing extension within the last eighteen years.

On the first day of January, 1829, there was not a railroad in operation upon which locomotive engines were successfully used as the propelling power—and it was not until October, 1829, that this power was brought to anything like a successful application; and even then *twenty tons on a level road*, at *ten miles an hour*, was the extent of the requirements of those who were in advance of the age in such matters! And even this degree of confidence in their power was confined to a very few persons in England; while in all Europe beside, and, with here and there an exception, in this country, they were as little thought of as the *Magnetic Telegraph* in 1840!! and yet, at this date, a locomotive, even of American manufacture, which will haul from a *thousand to twelve hundred tons* on a level road, at the same speed, is no uncommon machine!!! Such, indeed, have been the improvements in the construction of railroads and railroad machinery, that they are becoming the principal and most economical means of travel and transportation in this country, as well as in Europe; and it is therefore of the utmost importance that, in the construction of our long, and connecting, lines between the Atlantic and the western waters, we avail ourselves of the improvements of the present day in all Europe, as we did of those in England of 1829.

When we take a glance at the vast extent of our country—even as it was before the commencement of the present extension of its limits—and of the present condition and prospects of its numerous railroads, we cannot but view the introduction of the system as the means—greater than any, we may say than all other—of perpetuating our glorious union. It will prove literally, we doubt not—if properly carried out—as bands of iron binding us together, a family of states—thus ensuring our greatness and permanence as a nation.

If the construction of a single line of road from

tide water on the east, to the waters of the great lakes, or mighty rivers on the west, commands the admiration of all intelligent men—how much more will the completion of the numerous lines now in progress, and in contemplation, excite the wonder of the age in which we live.

When the line from Portland to Montreal, and from Boston to the same point, as well as to Burlington, Vt., and Ogdensburg, N. York, are completed; and when the New York and Erie to Dunkirk, and the Central Pennsylvania road to Pittsburg, and thence to Cleveland, and thence to Cincinnati, Ohio, are in use; and when the Baltimore and Ohio road, and the Richmond, Va., and Ohio road shall reach the Ohio river; and when the Carolina road from Charleston, through Georgia and the Central road, from Savannah, shall reach the Mississippi and the Gulf of Mexico—we say when these lines are completed, together with their numerous lateral and connecting roads—as they surely will be within the next twenty years—then we shall be able to appreciate with some degree of accuracy the utility and importance of the railroad system in this country. These lines, when completed, will be, it is evident, only the commencement of the system on this continent; and that, unless some other mode of travel and transportation be discovered as superior to it, as it is to its predecessors, the construction of railroads will be continued "until every town of any considerable importance in the country will have its railway facilities," and until the distance between the two oceans is traversed by more than one line of "iron horses." Indeed, when we look back upon the success of its infancy, we are disposed to think him a bold man who dares to predict from the past, the results even of its manhood to say nothing of its maturer years.

Enterprising these views in relation to the system, and its extension, we shall endeavor to make the Journal, in some measure, instrumental to its improvement and advancement—and we shall be much more able to do so if the profession and others connected with the management of railroads and their machinery, will make it the medium of their communications with the public. Let each one who has the volume of experience open before him, contribute a page, or even a column of facts annually, and thus the Journal will be what it should be—useful to all who may read it.

It may not be improper to say here, that we shall have the aid of able assistants in the editorial department, and that we hope to make it quite acceptable to its patrons during this, its *sixteenth* year of publication. And, while we desire gratefully to acknowledge the many obligations we are under to the profession and the friends of the Journal, may we not still look to them for a continuation of their efforts to extend its circulation and usefulness? All communications for the Journal should be hereafter addressed to the Franklin House Philadelphia, where we shall at all times be pleased to meet our friends.

### The Magnetic Telegraph.

W. B. LLOYD, Esq., the agent of the new company for the establishment of the magnetic telegraph from Washington to New Orleans, was recently in this city upon business connected with this matter. We are informed that a contract has been entered into by the patentees of Morse's Telegraph, to establish this line by way of Charleston, Mobile, and numerous other intermediate points of commercial interest. Books of subscription to this stock, the whole amount of which is estimated at less than \$200,000, will soon be opened in this city, and the great importance of the line, will, we feel

confident, commend it to favorable consideration.

It is thought probable says the North American, that Congress may take some action on the subject and aid its speedy construction as a war measure, in the way of loan, for it would place the cabinet at Washington in almost immediate communication with the army and navy in the Gulf, and incalculably facilitate all operations.

The telegraph is destined to wield a mighty influence in the commercial world; and it seems to us that merchants should be the most anxious to further its extension. Its days of experiment and the thousand difficulties attendant on all new discoveries, have been overcome, and hereafter, it will be looked to, not only as a useful but a profitable investment. In point of importance, no terminus will be more valuable than New Orleans, and if the different companies, now rapidly forming, keep their charges down to the lowest rates, they will have as much business as they can desire.

It is hoped and believed that a sufficient amount of this stock will be taken up at once, say \$25,000, to enable the contractors to commence the line from Petersburg, Va., towards New Orleans, by the middle of March next. If Congress gives a loan to the company, as is expected, the whole line, from Washington to N. Orleans, can be finished in six months. There can now be no question that the stock of the Magnetic Telegraph is one of the most profitable of all the profitable investments which can be made; and as the invention is perfected, and all the difficulties attendant upon the early experiments are overcome, it is no longer a matter of doubt whether the thing will pay. There certainly can be no route which may be rendered more advantageous to those interested, in a pecuniary point of view, than that which connects the "Crescent City" with New York and the East! We learn from reliable authority, that the New York and Baltimore line of Telegraph, has earned its stockholders *ten per cent.* on their investment, for the last six months—equal to at least twenty per cent. per annum, though the line has been interrupted by breaks much of the time. The Albany and Buffalo line, we understand, is now paying 28 per cent. on the cost, or 14 per cent. to stockholders, and this, too, in its first year!

On the 29th ult., upon the opening of the branch line from Harrisburg to the Ohio river, a message in reference to the U. S. volunteers, was transmitted from Pittsburg to Harrisburg, thence to Philadelphia, thence to Baltimore, and thence to Washington, in *eight minutes*. During the existing war with Mexico, what estimate can be placed upon the value of this powerful agent, for the transmission of important news from New Orleans to Washington! Or what price may be set upon the utility of this invention in communicating intelligence from one extreme of the union to the other, so far as the interests of the mercantile community is, at all times, concerned! Its value must increase, and those who embark in it, cannot fail, we think, to reap a satisfactory profit.

The books of subscription have been opened at the Exchange in this city, and also at the Franklin House—and we have no doubt that Philadelphia will do her share in this great enterprise.

### A Chapter on Our Railroads.

Our exchanges teem with paragraphs and notices of the progress of the railroad interest, and we have never known a period when a more lively feeling has been exhibited in relation to this important subject, than the present. Below we give, in brief, such statements as have reached us through the press, from different points, during the past week.



The Burlington Free Press states that it is now the intention of the contractor of the Vermont Central railroad company, to push forward the work at that end of the line, without delay. Mr. Palmer, the agent of Mr. Belknap, is already on the ground with a gang of hands, making preparation for the steam excavator, which he informs us will be placed in the embankment north of our village, as soon as the necessary arrangements for its reception can be completed.

The stock of the Cape Cod branch railroad has nearly all been taken. A portion of it is under contract, and the whole line will be completed within the time named in the charter, thereby greatly facilitating the communication between the Cape and Boston, New Bedford, Providence and New York. The Yarmouth Register says its termination will not be long at Sandwich. The proposition to extend it to Yarmouth is already talked of. The editor is confident the road would pay ten per cent. on the estimated cost of \$225,000, and is willing to back his opinion by a liberal subscription to the stock.

It is understood from gentlemen who have just traversed the line of the Lewiston and Waterville railroad, that the movement is vigorously resumed, and the subscriptions will now be continued with all practicable dispatch. Certain questions, which caused a suspense for some days, have been adjusted by satisfactory explanations and assurances.—The most favorable feeling now exists in every town along the line, and entire confidence is felt, that the connections of the road will be adjusted with harmony and with a profitable regard to the general welfare.

A meeting of the board of directors of the Souhegan railroad, says the Amherst Cabinet, was held at Hardy's hotel on the 14th ult. James U. Parker, Esq. resigned the office of president and director of the corporation. Israel Fuller, Jr., was elected to fill the vacancy as director, and Barnabas B. David was chosen president. The surveyor stated that he should be able to make a full report of the survey in a few days. There is the utmost confidence in the success of this enterprise.

The Cleveland Herald is informed that one of the directors of the Cleveland and Columbus railroad company had an interview with the commissioners of Knox county, and some of the citizens of Mount Vernon a few days since, and after a free consultation with them, and an exhibit of the prospects and intentions of the company, the commissioners determined to appropriate the \$100,000 county subscription to the Cleveland line, if at an early day it was shown the road could be made to Mount Vernon by the aid of the Knox county subscription. The citizens of Mount Vernon will also add probably \$50,000 to the county subscription.

The Connecticut river railroad is now completed, and has been run over the entire length about a month. The business on it, so far, has exceeded the most sanguine expectations of its friends. It is thoroughly built, and bids fair to become one of the best stocks in the state. Its cost of construction, including the Chicopee branch, engines, cars, depots, and furniture, we understand, is about one million of dollars—\$650,000 of which have been subscribed and paid in. About one-half of the balance of the money has been borrowed, and it is proposed to provide for the other half by issuing new stock, for which a special meeting of the stockholders has been called.

We understand that Mr. Josiah Hunt has been selected as superintendent of the Connecticut river railroad. This appears to us to be a good selection

—we think Mr. Hunt will prove an efficient, faithful and popular officer. The duties of the office have heretofore, during the progress of the construction of the road, been discharged by the engineer.

The Fall river railroad will open on Monday next, when passenger trains will commence running through Middleborough, Bridgewater, East Bridgewater, North Bridgewater and Randolph, to connect with the Old Colony road at South Braintree.

Since the freezing of the North river, a considerable amount of merchandise and a large number of passengers have been transmitted to New York by the Housatonic railroad. The freight agent at Albany writes that he is daily receiving two thousand dollars worth of freight for the east, and it is accumulating very fast at Greenbush, so that his depot is overflowing with produce—pork, flour, wool, butter, cheese, etc. The cars and engines of the company will have full employment this winter.

The railroad commissioners upon the Montreal and Atlantic railroad have closed their labors, in laying out and appraising the land damages of this road as far as Sanbornston bridge. The Montreal road will enter the Concord road near the south end of the passenger depot. The right of way from Concord to Sanbornston bridge, most of which had been previously purchased, costs the corporation only about \$7,500—distance, 18 miles. The Concord railroad has tendered to the Montreal road the free use of their passenger depot in Concord for all purposes connected with that part of the business of the road.

The Keene, N. H., Sentinel remarks that, in view of the roads to be immediately put under contract above us, and to connect with ours, even to Ogdensburg, no one can estimate the vast amount of freight and passengers destined to go over it. We doubt there being a road in New England, even the Western that can compete with it. The key stones of the great bridge (a magnificent structure) over the east branch, in this town, were put in place last week, and the filling is now going on vigorously, as is the work on the whole line. The remaining sections to the Falls, we learn, are soon to be put under contract.

Upon the subject of the Oregon railroad, we find in the Rochester Democrat a statement that Dr. H. Carver, of Pittsford, an old resident there, has gone to Washington to procure a charter to build the Oregon railroad, by individual enterprise. Dr. Carver has long manifested a great interest in this important work, and claims that he is the original projector of the enterprise. This claim is supported by a mass of testimony that is quite convincing to those who have examined it. It appears that he wrote and published articles concerning the project long before it was bronched by Mr. Whitney, or any other person. He is confident that the road can be built by individual enterprise.

The Springfield Gazette says that "the anticipated construction, within little more than a year, of the New York and New Haven railroad, which will complete the chain of railroad communication between the two great commercial capitals, Boston and New York, is a matter, the importance of which to the travelling community, is not likely to be overestimated. The advantages of an inland route, especially in the winter season, are apparent to every one; and in summer, the trip through the heart of Massachusetts, down the valley of the Connecticut, and along the shore of the Sound, will present attractions for the traveller, such as no other route of travel in the country can afford.

"Notwithstanding other schemes that have been

or may be started, based upon the increasing preference for land over sea routes, the rapidity of communication upon this line when finished, will doubtless be adequate to any reasonable demand of the public. If deemed desirable, we understand the entire trip can be made in seven or eight hours by trains provided for the purpose, running at a speed of 30 or 35 miles per hour.

This, then, must be one of the favorite routes of travel and of business, both in summer and in winter, and while the subject is one of deep interest to the public, it is peculiarly so to the large towns and cities through which it passes, and to none more than to Springfield.

On the subject of "New England Railroads," the Boston Courier, of a late date, says that "the railroads diverging from Boston are all doing grandly. The Fitchburg's receipts last week increased \$1400 over last year's business, which yielded 14 per cent. dividends. The increase on the Western was \$5700. The annual railroad reports will soon be published, and distributed among the stockholders. The aggregates and details cannot fail to show satisfactory results for the past year, and encouragement for the future.

"The railway share market closed on Saturday at the following quotations, viz:

	Official	Asked.
Lowell railroad.... par \$500....	592½	600
Nashua ".....	100....123	125
Concord ".....	50.... 65½	66
Fitchburg ".....	100....120½	121½
Worcester ".....	100....116	116½
Western ".....	100....103	102½
Maine ".....	100....113	112½
Providence ".....	100....107½	108
Eastern ".....	100....106½	108½
Old Colony ".....	100....102	102½

The items here furnished, show a healthy and rapidly increasing traffic upon our railways, in all directions, and we are gratified to notice the good feeling exhibited by the press in every part of the country, upon this important subject—in which the whole community are directly, or indirectly, interested.

#### New York Railroad Legislation.

In "Hunt's Merchants' Magazine," for December, appears an ably written production from the pen of Vice-chancellor WHITTLESY, upon the subject of "New York Railroads." It is well worthy of perusal, and as it embraces many important suggestions and statistics which we consider valuable, we transfer, below, to our columns, such extracts as we deem of general interest. In alluding to this article, a contemporary remarks that it is now about twenty years since the construction of railways, on an extensive plan, was commenced in England; and the fact no sooner became known, than the enterprise, so congenial to the American character, became a leading one in this country. The work of constructing a railway was too great for individual enterprise; and as the state of New York had already incurred a large debt in a system of internal improvements, by canals, the work fell into the hands of corporations. This created the necessity for some kind of legislation. The magnitude and importance of railways were not at first understood. There were dim, misty, and indefinite views of the consequences of such structures; and not being able to foresee the utility of these works, legislators, as well as corporations, acted, to a great degree, in the dark.

The great central lines of railroads, from the Hudson to Lake Erie, are about the only dividend-paying roads in the state of New York. The course of legislation in reference to these roads, is the subject of discussion in the article referred to.

The distance, about 350 miles, is filled by eight corporations, viz:—Mohawk and Hudson, from Albany to Schenectady; chartered April 17, 1826.—Schenectady and Troy, from Troy to Schenectady. Utica and Schenectady, from Schenectady to Utica; chartered April 29, 1833. Syracuse and Utica, from Utica to Syracuse. Auburn and Syracuse, from Syracuse to Auburn. Auburn and Rochester, from Auburn to Rochester. Tonawanda, from Rochester to Attica; chartered April 29, 1833. Attica and Buffalo, from Attica to Buffalo.

The duration of all these charters is fifty years from the period of their enactment. All the companies except the three to which the dates of the charters are affixed, were chartered in 1834 and 1836. The restrictions as to carrying freight and passengers are as follows:

As to charges for the transportation of passengers, the Mohawk and Hudson is unrestricted: the Schenectady and Troy is restricted to six cents per mile per passenger; and all others but one, to four cents per mile per passenger, and the Attica and Buffalo to three cents per mile per passenger. Such are the provisions for guarding the public against exorbitant fares.

As to restrictions upon carrying freight, the Attica and Buffalo, the Tonawanda, and the Schenectady and Troy, were unrestricted; the Mohawk and Hudson cannot receive greater tolls than the charges for transportation on the Erie canal; the Auburn and Rochester cannot transport property when the Erie canal is navigable, so as to lessen the income on that canal; the Syracuse and Utica, and Auburn and Syracuse, are to pay tolls to the canal fund on property carried by them when the Erie canal is navigable; and the Utica and Schenectady cannot carry freight at all. These are the provisions for guarding the Erie canal against injurious competition with the railroads in the transportation of property. The Utica and Schenectady being wholly forbidden the carriage of property, and some of the other roads being restricted, by provisions more or less stringent, the consequence is, that none of the railroads carry much freight, and generally only that which moves between the interior and points on the canal, and which is of no injury to canal freights. This feature of railroad legislation was modified by an act passed in 1844, authorizing the Utica and Schenectady railroad to transport property in the winter, when the canals are closed. But this company pays tolls to the state equal in amount to canal tolls on all property it carries, and all the other roads pay such tolls upon all property which passes their respective roads, by reason of opening the Utica and Schenectady road to the carriage of freight.

The consequence of this legislation has been a considerable movement of property on the railroads during the winter months; but still, the whole freight upon all these railroads is quite trifling in amount.

The state claims the right of assuming some of the railroads, upon the following conditions:

In the case of the Mohawk and Hudson, and the Tonawanda, the state has the power of assuming the works, after ten, and within fifteen years, upon payment of the cost and

14 per cent interest, deducting income received; and as to all the other roads upon the line, on payment, in like manner, of cost and ten per cent interest. This provision insures the control to the state, in case it should find that the railroad corporations realized greater profits than it was for the interest of the public they should enjoy.

The following is suggested as the true policy of the state in reference to railroads:

The true legislative policy in regard to railroads, for the state of New York, is to inspire capitalists with confidence, by giving them an assurance, in some shape, that the rate of fares authorized by their charters shall not be reduced by legislation, and trust to the competition afforded by rival routes to insure that character of road, speed, and cheapness, which will be satisfactory to the public. Investments in the different routes will thus be secured and their natural competition will effect the desired results.

The following remarks on the subject of fares, are interesting:

The true medium, or just rate of fare, can only be satisfactorily ascertained by experiment. The managers of these different railroads are the proper persons to make the experiments. They are the persons equally interested in the result with the public.—They understand all the circumstances under which their business is transacted; and they know many things affecting the question which the public will not take the pains to know or to weigh. Common prudence would dictate that such experiments be made cautiously.

#### Massachusetts Railroads, compiled from Legislative Reports for 1845.

Name of road.	Length of road.	Revs per m fm pas gr.	Revs per m fm freight.	Tot. revs per mile.
Boston and Lowell.....	26	\$6,771	\$6,670	\$13,441
Boston and Maine.....	60	2,876	1,753	4,629
Boston and Providence..	41	5,675	2,653	8,328
Boston and Worcester...	44	5,483	5,307	10,689
Eastern.....	54	5,508	740	6,248
Western.....	156	2,351	2,700	5,051

#### New York Railroads, compiled from Legislative Documents for 1845.

Mohawk and Hudson..	16	5,977	1,091	5,068
Utica and Schenectady..	78	4,600	1,068	5,698
Syracuse and Utica....	53	3,443	411	3,854
Auburn and Syracuse..	26	3,057	781	3,838
Auburn and Rochester..	78	2,745	319	3,064
Tonawanda.....	43	2,090	625	2,715
Attica and Buffalo.....	31	1,902	365	2,267

The experiment of reduction of fare upon all the roads of this line, was made in 1843. It did not succeed. The receipts did not afford a remunerating profit, and the season subsequent, the former rates of fare were restored. It has been supposed that a reduction to a sufficient extent would transfer all the passengers from the canal boats to the railroads. This we believe to be an error. The canal boats can carry passengers at lower rates than railroads, and the latter cannot reduce so that the former will not still be below them.—There is but little capital vested in a line of canal boats, but a very large sum in railroads. Competition would ruin the latter, without seriously affecting the former. Re-

ference has been frequently made to the Massachusetts railroads, to show the beneficial effect of low fares. The comparison is hardly a fair one. The Massachusetts railroads receive a large income from freight—the railroads under consideration comparatively nothing. These railroads must look to passenger fare for their whole income. Take from the Massachusetts railroads their freight, and they would scarcely be able to make dividends from their passenger receipts. The preceding table will show the comparative business of a number of companies in Massachusetts, with these railroads in New York.

We have not the least doubt, however, that as soon as the central line of road is reconstructed, with a heavy rail, it will be enabled to realize a profit at reduced rates. The increased speed and reduced rates together, will command an additional number of passengers, sufficient to compensate for the reduction. Nay, we are inclined to the opinion that even now, the fare may be somewhat reduced on the line, without injury to the income. Though the experiment of reduced rates was not successful in 1843, we believe it might be in 1847. The completion of railroads, through Ohio, and some other western improvements are calculated to throw a greater amount of travel upon this line; and a reduction might now be made, not with the idea of taking travellers from the canal, but to increase the amount of local travel and long travel. In our judgment, it would be both good policy and for the interest of this central line, before the close of the present season, to make arrangements to carry at some reduced rates for the ensuing season. This would show the public that they are really seeking to find the true medium rate of fare. The business of 1846 will show, probably, an advance upon the receipts of the previous year of more than 20 per cent. The prospect of the business for the year 1847, is still better.

The great obstacle to the reduction of fares, is the number of corporations on the line.—An amalgamation of the various companies, would produce unity of action and prevent many vexations, irregularities and failures. The following remarks in reference to the canals, will meet, we presume, with the cordial approbation of all:

There is an opinion entertained somewhat extensively that these railroads should be permitted freely to carry freight at all seasons of the year, without the payment of any tolls to the state. We cannot concur in such opinion. As long as the state of New York is heavily in debt for the construction of her canals, and as long as a direct tax is necessary to pay the interest of such debt, it seems quite right that the canal revenue should be guarded from any inroads by any competing lines. If under such exemption from tolls, the railroads should carry large amounts of freight, it would by just so much, impair the canal revenue, and render a tax to meet the canal debt just so much more the necessary. The carriage of property by railroads in the winter, when the canals are closed may, however, with great propriety be made free from the payment of tolls to the state. The amount so



transported will be comparatively small. It will consist, to a considerable extent of fresh provisions, poultry and articles of that character, which would otherwise not be transported at all. It is of great benefit to the public to have this transportation open. The collection of the tolls to the state is attended with some trouble and embarrassment.—These tolls are small in amount—the whole tolls of a winter not exceeding two days' toll upon the canal in the active part of the season—and are comparatively, not worth looking after, and might with great propriety, be relinquished.

The business transacted upon the railroads in New York, as well as upon the railroads in Massachusetts, in 1846, affords every encouragement to railroad enterprise. There have been an increased number of passengers, increased traffic, and increased earnings. This would naturally stimulate the construction of new road; and under the fostering care of a judicious legislation, the state of New York might be covered with an iron net work of permanently constructed railroads, developing its resources, facilitating its traffic and ministering to its wealth. The completion of these various works would be the effective coercion to accommodation, speed and cheapness. Under a legislative policy which should deter capitalists from railroad investments, the state of New York would fall quite behind her New England neighbors in the means of transacting business afforded by permanently constructed railroads. She would be arrested in the noble career open to her ere she had well entered upon it, and would be unable to reconstruct the present work, or enter upon any new enterprise. The whole state has a deep interest in the legislative policy which the state of New York shall adopt, and every one should throw in the weight of his influence to give it a wise and judicious direction.

#### Broad Gauge from Boston.

In the Boston Post a few days since, occurred the following editorial reference to railroad achievements in England—to which is subjoined, it will be seen, a suggestion of the adoption of the broad gauge for the projected air line road from Boston to New York.

The locomotives now in progress for, or already launched upon the Great Western or Exeter, Bristol and London railway, which is of the *cheval de bataille* of the broad gauge, seem to attract great attention from scientific and practical mechanics in England, France, etc. One is especially commended which performed the 193 3/4 miles between Exeter and Paddington in 211 minutes in one instance, and 214 in another, with a train of 140 tons beside the weight of engine and tender, which added 56 tons more with a full supply of coal and water. This engine has 8 feet driving wheels, 24 inch stroke, 8 inch cylinders, 15 1/2 feet length of tubular boilers, and weighs 36 tons without water; the tender 10 tons more—and when loaded, the whole gives an adhesive power of 56 tons. If the air line from this city to New York, is ever constructed as it should be, with a wide gauge, our Boston machinists, Hinckley &

Drury, will not flinch from a trial of speed with the above, with engines they could turn out.

This air line railroad to New York—adds an exchange paper—is now attracting a new attention, induced in part by the approaching session of the Massachusetts Legislature, and partly by the distrust of steamboat navigation on the Sound. A public meeting is called in Boston on the subject. The road is spoken of as one that is to be a straight and independent road.

The portions within the states of New York, Connecticut and Rhode Island, we believe are already chartered. The application for a charter within the limits of Massachusetts, will be renewed at the session commencing next month. The published petition prays for a charter, "with all the powers and facilities for constructing and opening a railroad upon improvements combining the greatest speed, safety and public convenience."

#### Bridge Across the Ohio.

In the last number of the Journal we alluded to this enterprise, and we are happy to see that the citizens of Cincinnati are alive to its importance.—We find in a late number of the "News," the following allusions to the plan, and to its projector, MR. ROEBLING:

This plan—as developed by a civil engineer, whose capacity and competence no one has denied or attempted to question—has likewise been described in most of the public journals in this region, and a large edition has been published and circulated in pamphlet form. It is evident, therefore, that the popular mind is properly informed upon the subject, and that if any well founded and substantial objections to the feasibility of the project, has been discovered, those most interested would not have remained uninformed of their character.

The only evidence submitted to the public calculated to destroy faith in the plan of Mr. Roebling, has been circulated in a memorial to the Legislature now seeking for signatures. This memorial has most likely been gotten up by speculators and property holders, who oppose the bridge from motives purely mercenary, and who would be sure to scrape together all facts or fictions calculated to aid their cause.

But—adds the News—there is another aspect, higher than all the rest, in which this question is to be viewed. All that is involved in the subject is not embraced in the inquiry whether the vacant lots of Smith above the city—the subdivision of Brown below the city—the commons of Thompson in the rear of the city, or the real estate of Green in the city proper—is to be diminished in value; whether the ferry of Jones, or the wharf of Gray, is to lose a share of the profits it has enjoyed; whether Simpkins & Co., on the opposite side of the river, are likely to reap the benefits of the change in the increased value of the soil that happens to be in their possession. The people at large are interested, most deeply interested, in the settlement of the question; the universal good must be consulted, whatever partial evil may be inflicted. We believe it is not denied in

any quarter, where pretensions to common sense are preferred, that the construction of a bridge across the Ohio river at this place, which shall not interfere with the free navigation, and which will become a safe passage at all times, day and night, to all who have occasion to cross, will be a work of such magnificence in its utility that it will reflect honor on the head that conceived the plan, and the hand that carried it into execution.

The cities of Covington and Newport are natural suburbs of Cincinnati—they are a part and portion of us—their citizens are our citizens. Shame on the narrow minded shallow policy that would attempt to keep us forever asunder, when nature has said that we should be members of the same common family!

Let the action of our Legislature, then, be governed by a keen anxiety to consult the just interests of all classes and by the purest principles of practical republicanism. Go for the good of the whole—of the mass—not to perpetuate the lucky and crafty few in their privileges. And if our Legislature will look at the subject with open eyes and not through the spectacles which have been placed on their noses by some of their very disinterested friends, we entertain no doubt that a bridge not at all interfering with the interests of commerce, will be finished across the Ohio, in less than five years. If the work can be thus accomplished, the benefits are incalculable—the evil effects so trifling, as not to be worth taking into consideration.

#### Railroad to Albany.

The feeling of the community is at length beginning to be aroused in regard to this important work and it is high time that it should be so; it has been suffered to remain dormant too long.

Several articles have recently appeared in the public prints, setting forth the various pretensions of the two rival roads: the contemplated 'Hudson River' and the 'Harlem.' To any one of a sound reflecting mind, who has taken the trouble of investigating the matter at all, there is probably no longer any doubt which of these lines ought to have the countenance and support of the community; but it is to be feared that there are comparatively few of those, and too many who are entirely ignorant of the relative advantages which one of these routes presents over the other. Why will such persons suffer themselves to be imposed upon by misrepresentations of interested parties, rather than listen to facts, and look into the merits of the undertakings for themselves? That a railroad is needed between New York and Albany, no one disputes, but is it not also essential that it is built in the most approved and substantial manner, and on the line best calculated for the business to be done on such a road, with economy and speed?

It is admitted that the highest grade on the proposed Hudson river road is 17 feet per mile only, against 35 feet on the Harlem, or interior route; and sufficient importance cannot be attached to this fact, for as competent engineers have shown, a locomotive of 15 tons weight will draw a load of 225 tons on

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the river route, while the same locomotive could draw 146 tons only on the Harlem—thus proving that it will cost about fifty-three per cent. more to transport goods and passengers over the Harlem than over the river route. This argument in itself seems so important and conclusive that it certainly deserves a great deal more consideration than appears to be bestowed upon it.

Why meddle with a project exhibiting such disadvantages as the Harlem concern does, (independent of their otherwise embarrassed condition,) when one infinitely superior is offered? The names of the gentlemen connected with the proposed river route are a sufficient guarantee that they will carry out what they undertake—only give them the opportunity to do so, and that now rests with the community.

The navigation of the Hudson is closed for the season, and usually remains so for nearly four months. Now is the time when the want of a good railroad to Albany is more apparent than at any other. Citizens of New York, do not suffer this all-important work to the prosperity of this great city to slumber any longer, but come forward and subscribe, and liberally too, to the stock of the proposed Hudson river railroad, and rest assured that none of you will ever regret having lent a hand to so noble and important an undertaking.

These remarks are penned by one who has no other interest in the matter than the welfare of the city, and that in common with many others, as a merchant.—*N. Y. Com.*

#### New York and New Haven Road.

A late number of the New York Express, in an article upon the Erie railroad and other enterprises of this character, alludes as follows to the New York and New Haven road:

The next work in point of magnitude is the New York and New Haven railroad.—This road when completed, will connect the city with the Housatonic road at Bridgeport, thus giving us a line to Albany and the great west. It will strike at New Haven, the road to Hartford and Springfield, and from that point connect us again with Albany, and with the road to Boston, as well as with the road stretching up the valley of the Connecticut river to Vermont and New Hampshire. The importance of this link in the chain of communication has never until now been properly estimated. The distance is less than seventy miles, and a great part of the way on a dead level. It will pass through one of the most densely populated portions of the country. Some of the towns, particularly Stamford, Newark, Bridgeport, Fairfield, Stratford, are larger than some of our cities. This work is now begun in good earnest. A number of wealthy individuals, instead of throwing the work on the public to become a football, to be kicked about by stock jobbers in Wall street, have taken hold of it in a proper manner. They have taken most of the stock themselves, with the intention of keeping it and carrying it above par. The road is now under contract, and in about a year will be completed. Its cost will be about two and a half millions of dollars. The stock is so far

held by rich men, and instead of going a begging is sought after.

The disaster which has recently befallen the Atlantic, will contribute greatly to the completion of the work. The public now see in a new light its importance. If this road were finished at this time, the travel would be immense. One year, or at most two will see this important work completed, and then we shall have a continued line from the extreme points of Portland, in Maine, with all the varied lines in Boston, and to Buffalo, through Albany, Bridgeport, &c.—This will truly be an important link in the connecting chain of railroads.

#### Miscellaneous Items.

*The Chesapeake and Ohio Canal.*—Some of the papers on or near the line of the canal have expressed strong hopes of the completion of the canal under the present contract. We believe that we are correctly informed as to all that has been done and is now doing in relation to this great improvement, and, without wishing to excite any false expectations, we would remark that the prospect of completing the canal at an early day is certainly more flattering at present than at any time since the suspension of the work.—*Cumberland Civilian.*

H. Downing, Esq., president of the Atlantic and Ohio telegraph company, was at Cincinnati last week, and informed the Gazette that arrangements were in progress for extending the line from Pittsburg via Wheeling, Zanesville, Columbus and Dayton, to that city, and thence to Louisville and St. Louis. It is designed to have the line to Cincinnati in operation in May and June next. If Professor Morse invented the means to annihilate space and time, it is very evident that the indefatigable Henry O'Reilly has been equally fortunate in furnishing the means to make the discovery available to practical purposes.

*The Broad Gauge.*—The editor of the Bangor Courier gives his opinion with regard to the construction of railroads upon the broad gauge principle, so that freight and passengers cannot connect with the roads from the west without transshipment; that the people in that portion of the state are almost wholly in favor of the ordinary gauge, and not the broad gauge. No delay or interruption at Portland or elsewhere, "seems to be the prevailing opinion."

*Steam Communication with the West Indies.*—The Royal Gazette of Bermuda contains a prospectus of the West India and United States steamers. The company proposes that every two weeks one of the steamers will leave Demerara for St. Thomas, touching at Trinidad, Tobago, Granada, Barbadoes, St. Vincent, Antigua, etc. On the other hand, a steamer will leave Vera Cruz every two weeks for St. Thomas, touching at one or two ports of Cuba, at one port of Jamaica, at Cape Haytien and Puerto Rico. Upon the arrival of the two steamers from Demerara and Vera Cruz at St. Thomas, their passengers and merchandise will be transferred to steamers of a larger class, to sail thence for

New York, touching at Bermuda. It is the intention of the company to have the boats reach New York in season to connect with the steamers which will leave there for Liverpool. Upon the arrival at New York of the mails from England, the West India boat will depart for St. Thomas, touching at Bermuda.

*Machine for Pressing Brick.*—The Ledger states that a model of a machine for pressing brick is at present exhibited at the Exchange by the inventors, Messrs. Culbertson, McMiller & Co., of Cincinnati, who have it in practical operation at that city. It consists of a frame containing 14 moulds, which are filled with dry clay from hoppers on either side of two rollers, the upper one giving a pressure of 100 tons to each brick, as the frame work is worked backwards and forwards beneath it, by the application of steam or any other power equal to the task of moving the machine. Each brick passes twice beneath the roller, rendering the pressure equal on all sides, and is then raised above the upper surface by the action of parallel levers on the movable bottom of the mould, and are pushed over to a side table by self-acting machinery, which flies back to its former position; the reverse action of the wheel then commences, the bottoms of the moulds sink down, and are again filled as they pass beneath the hopper. If more material is pressed into the mould than is sufficient, a knife ranging with the surface shares off the surplus. When driven by steam, and with two men shovelling the clay into the hoppers, two more taking the pressed bricks from the table, and another wheeling them off into the kiln, from 30 to 35,000 can be made in a day of 10 working hours. In the long days of summer as much as 40,000 can be produced ready for the kiln. This machine offers many advantages, and not the least is that the brick it produces must be very firm from the enormous pressure employed in its manufacture. This method of making brick affords great economy of time, owing to its operations not being circumscribed by frosty or rainy weather; and as the bricks go immediately from the machine to the kiln, there is no extensive yard room needed for spreading them out to dry.

*Wabash and Erie Canal.*—The Cincinnati Gazette of Thursday says: Mr. Charles Butler passed through the city yesterday, on his way to Indianapolis. We are well pleased to learn that the subscription required for the completion of the Wabash and Erie canal has been filled up by the holders of Indiana bonds. We cannot see any room to doubt now that the arrangement for the state debt of Indiana, proposed in the act of last winter, will be fully carried out. Some light modification of the law of last session is necessary, but we have full confidence that all well wishers of the good name of Indiana, be they Whig or Democrat, will unite in all proper measures to bring this business to a speedy termination. It can now be done with honor; but if this arrangement is defeated, it will be long before the credit of the state is restored, if it ever is. Let the credit of this noble state be preserved.



**The Miami and Erie Canal.**—We are informed by Mr. Lapham, the collector of tolls in this city, that the acting commissioner has given directions to the superintendents on this canal, south of Dayton, to provide ice boats, and to keep the navigation open as long as possible by breaking the ice as fast as it accumulates.

The business on this canal the past season has been considerably greater than that of the year previous, notwithstanding the disadvantages to which it was subjected by breaches, and the competition of several routes.—We likewise understand, and are much pleased to hear, that the board of public works have it in contemplation to make a further reduction of tolls for the next season's operations, and to make some improvements to the canal for facilitating the business, with a view to increasing still further the amount of transportation on this great thoroughfare of the commerce of the west.

The magnetic telegraph is now in complete order between Toronto and Hamilton. On Saturday afternoon communications were made between the sister cities, when the mayor of Toronto sent his compliments to the president of the board of police here, congratulating him on the intimate connection now existing between them, consequent on the erection of the magnetic telegraph, which courtesy was promptly reciprocated, and compliments interchanged. A number of communications were then made between the parties in the different offices. The instruments, we understand, worked remarkably well. It is expected that in the first week in January, the whole line between Toronto and Buffalo will be finished and in operation. The wire is to cross the Niagara river at Queenston. A single wire only is used, being all that is necessary, but which is stronger than has been heretofore in use.—*Hamilton Gazette.*

**Submarine Explosions.**—The London Globe states that the Harbor Master of the Thames, Capt. Fisher, has, within the last few days, completed the removal of three sunken wrecks, which have for some considerable time greatly impeded the navigation of the river in the Lower Hope. Their removal was effected by submarine explosions, of various charges, averaging from 50 to 500 lbs., fired by means of galvanic battery. In the case of the larger explosion, a remarkable incident occurred at the moment of firing. An immense shoal of fish was passing the spot, and nearly the whole of them were blown out of the water to the extent of near 80 feet, the circumstances being followed by the raising of a huge column of water to about as great an altitude, which emitted a large portion of the destroyed wreck as it from the force of a volcano. The river from London bridge to the Nore is now perfectly free from all obstruction. The dangerous shoal of hard shingle off Lime house reach, which stopped the navigation of vessels of a large draught at low water, has recently been removed by the same means. The depth of water has been increased from 4 to 17 feet at low water.

**SPRING STEEL FOR LOCOMOTIVES.**—Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
FULLER & BROWN, Agent,  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 1039

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR**

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

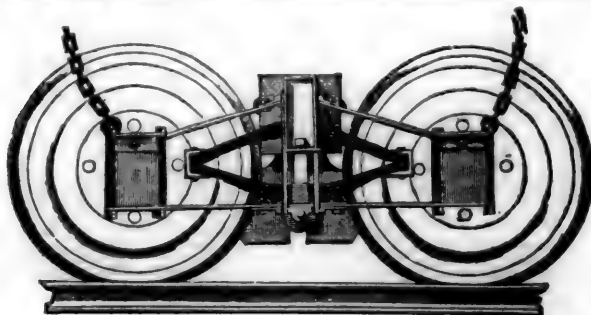
Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,  
60 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [174]

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

Supt Motive Power.



### RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

#### TEST No. 10.

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, and its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

#### TEST No. 11.—Certificate.

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

#### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, ja45 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

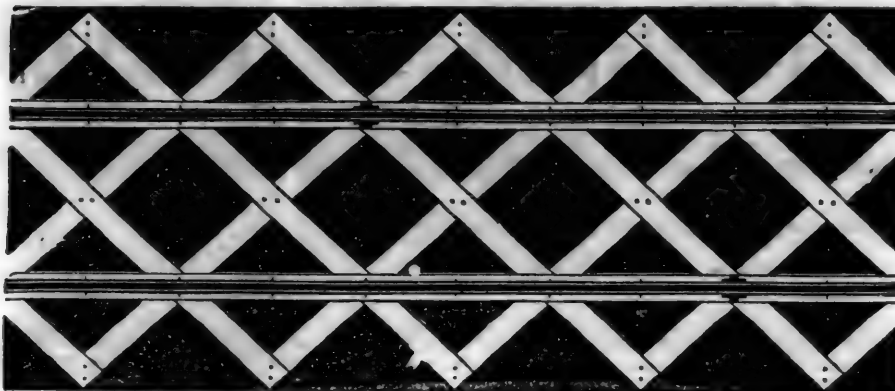
**DAVENTPORT & BRIDGES CONTINUE** to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1y1



## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33tf

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.**—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, ly10 near Third, below Walnut, Philadelphia.

## LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

28 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works, Maryland.

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

ly48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

46tf

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHOENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,  
AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

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SATURDAY, JANUARY 9, 1847.

[WHOLE No. 551, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$135 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES CONNECTING** with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.  
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Super't.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mans-

field, 68 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$3 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

Sandusky, Ohio. B. HIGGINS, Sup't, etc. M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tr

## NORWICH AND WORCESTER RAIL-

Road. Summer Arrangement, commencing

Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly

J. W. STOWELL, Sup't.

# TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

## TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail, which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

## TROY AND SARATOGA RAILROAD.

### THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

## BALTIMORE AND OHIO RAILROAD.

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

## NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

### TIME.

From Buffalo to Sandusky 24 hours. Leave Sandusky 5 a.m. to Columbus 14 " From Columbus to Cincinnati 15 " Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

### FARE.

From Buffalo to Sandusky, Cabin 96 00 " " " Steerage 3 00 " Sandusky to Columbus 4 50 " " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

## NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m.

## BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at 9 a.m. and 3 1/2 p.m. Arrives at 5 a.m. and 6 1/2 p.m. Leaves York at 5 a.m. and 3 p.m. Arrives at 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at 6 a.m. and 2 p.m.

### FARE.

Fare to York 1 50 " Wrightsville 2 00 " Columbia 3 12 1/2

Way points in proportion.

## PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg 39 Or via Lancaster by railroad 10 Through tickets to Harrisburg or Gettysburg 3 In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at 5 1/2 p.m. Returning, leaves Owings' Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

## SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama. Fare through from Charleston to Montgomery daily 26 50 Fare through from Charleston to Huntsville, Decatur and Tusculum 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

## CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't, Transportation.

## MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburg, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100 lbs. 35	
Crockery, per cubic foot.....	0 15 " " 35	
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to  
STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLIOTT & ABOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 388 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	95
Salt per Liverpool sack.....		
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. 44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Hallwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
E. cor. 12th and Market sts., Phila., Pa. a45

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield.. 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47½ W. H. CLEMENT, Sup't.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**CLEVELAND, COLUMBUS AND CINCINNATI** Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.  
A. G. LAWRENCE, Secretary.  
CYRUS WILLIAMS, Engineer.  
Cleveland, October 23, 1846. 45 1m

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.  
25 " 2½ x ½ " Flange Iron Rails.  
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f



**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft, with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**PATENT INDESTRUCTIBLE WATER Pipes.** The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

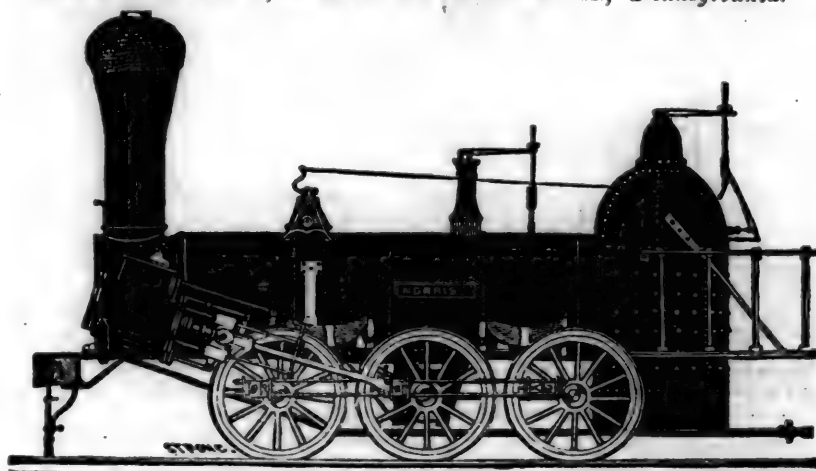
284 J. BALL & CO.

**LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tires imported to order and constantly on hand by **A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia.

**KEARNEY FIRE BRICK. F. W. BRINLEY,** Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign; Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

## "Railways at Home and Abroad."

THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)

(Continued from page 8.)

The line from Amsterdam to the frontier of Prussia is completed, and open as far as Arnheim, a distance of fifty-eight miles. This was constructed by the state, but afterwards leased to an Anglo Dutch Company. The capital invested being £800,000, the cost is £15,000 per mile. Privileges have been granted to companies for the construction of various other lines.

In a late session of the Second Chamber of the States-General, the minister of the Interior announced the approaching execution, through the instrumentality of private companies, of a complete system of railways; surveyed and laid out under the immediate superintendence of the government—the total capital to be invested in which would amount to from six to seven millions sterling.

Passing over the Italian States and Portugal, where little has yet been done in railway undertakings, we shall only add, as to Spain, that if behind other European powers in the improvement of inland transport at home, she has not been so supine in her colonies. A railway, forty-five miles in length, was constructed across the most fertile part of the beautiful island of Cuba, so early as 1838, and has since been in constant use. It is difficult to convey any adequate impression of the effects, produced on the mind of the traveller as he is carried over this natural garden, in a way so little to be expected, amid such scenery. Emerging from the tacon suburbs of the Havanna, he traverses fields of pine-apples, bordered by hedgerows bending under the burden of the ripe orange, and sprinkled at intervals with the banana, the plantain, and the cocoa-tree. These are alternated with sugar plantations and tobacco. Through this scene, redolent of the Tropics, and calling up the historic recollections of Columbus and his adventurous companions, he is whirled at the rate of twenty miles an hour, by machines bearing the name of a Manchester manufacturer, impelled by fuel from Lancashire, and worked by an engineer from Newcastle-on-Tyne! The swarthy African, as the strange apparition passes him, pauses from his toil, and gazes at it with a wonder which time and custom can hardly abate.

The advantages which railway transit presents on the score of expedition, economy and certainty, have, in the estimation of a considerable portion of the public, not only in England but elsewhere, been regarded as subject to a serious drawback and qualification, in consequence of the terrible character of the accidents which have from time to time, occurred. The circumstantial details of cases, circulated in highly-colored accounts by the daily press, are certainly calculated to raise much apprehension. We shall now, therefore, lay before the public such data of a well-ascertained nature, as may enable every one endowed with common sense and reflection, to decide on the

actual nature and degree of danger to which he exposes his person when he makes a journey by railway conveyance.

By the official reports of the Belgian Railways we find that 6,609,215 passengers travelled on these lines between 1835 and 1839. Of this number fifteen were killed and sixteen wounded by railway accidents. But of these numbers twenty six were persons employed on the road or in working the trains. Only three passengers were killed and two wounded. The chances of the death of a passenger from railway accident were therefore 1 to 2,203,215. In 1842, the number of passengers was 2,716,755. Of these three only were killed, one of whom was a suicide, and the other two met their deaths by crossing the line.

On the French lines, the deaths from accident have been still more rare. According to an official return for the first six months of 1843, upon the six lines which issued from the capital, of which the total length was 212 miles, the circulation had amounted to 18,446 trains, which transported 1,889,718 passengers. The distance travelled over was 316,945 miles. No traveller was either killed or wounded. Only three agents of the railway suffered.

It may not be uninteresting to put in juxtaposition with this, the returns of accidents produced by ordinary horse-coaches, travelling in Paris and its environs:

Year.	Killed.	Wounded.
1834	4	134
1835	12	214
1836	5	220
1837	11	361
1838	19	366
1839	9	364
1840	14	394
Total,	74	2073

On the English railways, of which the extent and traffic are much greater, the absolute number of accidents fatal or injurious must of course be expected to be more numerous. But we shall find, by referring to the Parliamentary returns, that the actual amount of danger to life or limb, on English railways, is quite insignificant. We take the following Statement from the last return of the Railway Department to Parliament:

Years.	Number of accidents.	Number of persons injured.		
		Killed.	Injured not Fatally.	Total.
1840.	28	22	131	153
(five months)				
1841	29	24	72	79
1842	10	5	14	14
1843	6	3	3	4
1844	34	10	74	74
1845	15	2	30	30

Years.	No. of miles of Railway open.	Proportion of the No. of persons injured to the total number carried.	
		Total No. of persons injured.	Total No. of persons carried.
1840	1330	6,029,866	1 in 39,410
(five months)			
1841	1556	20,449,745	1 in 213,018
1842	1717	21,358,445	1 in 1,124,128
1843	1798	25,573,525	1 in 4,262,087
1844	1912	30,363,052	1 in 356,702
1845	2118	16,720,550	1 in 522,517

It appears, therefore, that the chance in favor of the safety of travellers who con-

duct themselves with ordinary prudence, is half a million to one.

It may perhaps be asked, what is the kind or degree of prudence or caution expected from railway travellers, as more especially necessary to their security. We answer, as the result of rather large experience of railway travelling in nearly every part of the globe, that the best general rule is to keep your place in the carriage, if possible, to the end of your journey; never getting out and in at stations, except when indispensably necessary.

Among the numerous questions which have arisen out of the conflicting interests engaged in railway speculations in England, there is one which demands some notice, were it only on account of the extraordinary extent to which it has lately engrossed public attention. Nothing can more strikingly demonstrate the profound and general interest felt in everything connected with railways than the bitterness which has marked the contest, in which dispassionate and disinterested parties would find it difficult to discover any ground for a reasonable doubt as to the proper decision to be come to.

We have seen that there was in operation, at the close of last year, about 2100 miles of railway. In the construction of 1860 miles of these, the space between the rails was fixed, in accordance with that adopted in the earlier lines, at 56½ inches; an uniformity rendered necessary in order to enable engines and carriages freely to pass from line to line throughout the country. A line called the Great Western had been laid down through a certain tract of the country, with an exceptional width (or gauge as it has been called) of 84 inches; and from this line subsequently branches were extended, having, of necessity, the same gauge. It was, of course, evident from the beginning, that this system of exceptional lines, now amounting to 240 miles, by the adoption of a different gauge, dissociated itself from all other British railways; the commerce of which could never flow into it, nor could they receive from it any commerce except by transhipment. It was said at the time, by the superintending engineer of these lines, that the departure from the ordinary gauge was 'undoubtedly an inconvenience. It amounts to a prohibition to almost any railway running northward from London; as they must all, more or less, depend for their supply on other lines or districts where railways already exist, and with which they must hope to be connected. In such cases there is no alternative. The Great Western Railway, however, broke ground in an entirely new district in which railways were unknown.

It can have no connection with any other of the main lines; and the principal branches were well considered, and almost formed part of the original plan; nor can these be dependent on any other existing lines, for the traffic which they will bring to the main trunk."

\* Report of J. K. Brunel to Directors of Great Western Railway. 1838.

The commercial isolation of this exceptional system was, therefore, contemplated by the engineer and directors, and consequently no inconvenience to themselves or the public was feared. Indeed none, in that case, would have ensued. But, in the event, the development of railway transport far transcended the anticipations of the engineer and directors of the exceptional gauge, as well as all the rest of the world; and, contrary to their expectations, the ramifications of the general gauge have already come into contact with those of the exceptional gauge; and experience has proved Mr. Brunel to have fallen into a serious error, when he declared, so explicitly, that the exceptional system could never derive its traffic from the general lines of the country. One point of contact has been produced, and a line of others must ensue. The question then arises, what is to be done?

The narrow strip of England, extending westward from London towards Bristol and Exeter, where the exceptional system of railways now prevails, is about to be insulated from the remainder of the country, north and south. It will be, so far as regards railway communication, as though it were separated from the rest of the kingdom by a river, too wide and too deep to be crossed by a bridge. The commerce between it and the districts north and south must be conveyed by ferries at each point, on the banks of this river, where the railways respectively abut. Passengers arriving on either side must leave their carriages, taking with them their *impedimenta*, great and small—such as great-coats, umbrellas, parasols, and carpet-bags. And all this must happen night and day, in fair weather and foul. The wife and children must, equally in the pelting storm, and in the darkness of night, bustle their way through the mud from the one train to the other. The trains of merchandize must all be unloaded and unpacked on one side, and reloaded and repacked on the other; to the loss and damage of the owners, and delay and cost of transit; for *some one* must pay for all this labor, and who that *some one* shall be, it is not difficult to tell. Regiments of porters must be maintained at these limits of the exceptional gauge; and must be relieved by relays from time to time, for the work will be incessant night and day. And this is to be going on perpetually through the year, and from year to year, as long as railways shall endure, along a boundary line running on both sides parallel to a main railway, 200 miles long!

But it may be asked, whether there is no countervailing advantage to set off against this intolerable evil? A long and expensive inquest has been held on the matter by the Queen's Commissioners, duly appointed, and a ponderous mass of evidence has been collected. The result is, that either, the ordinary or the exceptional system of railway affords all the safety, comfort, regularity, and speed, which the public can possibly desire; that they both have ample power and capacity to satisfy all the wants of commerce which either exist or can be

reasonably anticipated. The partisans of each system contend for relative superiorities in various respects; but the differences claimed are so minute as to be discoverable only by those pledged to the success of the one system or the other; and are such as cannot, in the remotest degree, interest the public.

The magnitude of the nuisance, then, being admitted on all hands, and the utter impracticability of all expedients suggested for its abatement, nothing remains but to remove it; either by replacing the general gauge of the country by the exceptional gauge (which would render necessary the enlargement of all bridges, viaducts, tunnels, embankments, and cuttings, and a reconstruction of the stations and depots), or to bring the rails on the 240 miles of exceptional lines closer together, and modify the carriages and engines accordingly. The former measure is of course out of the question, but the latter could be accomplished, without interruption to the traffic, at a cost of something less than a million sterling.\*

It is contended, however, that the exceptional lines having been constructed under the sanction of an act of Parliament, the shareholders could not with justice be required to subject themselves to such an expense for the common good; that still less could the shareholders of other lines be so required. We are not disposed, nor will our limits allow us, to discuss this question of vested rights. But it appears to us very evident, that the British public cannot, and ought not to suffer itself to be made the victims of this nuisance; and that if the expense of its abatement can be obtained, consistently with justice, from no other quarter, it must come from the public treasury.

When the earlier railway bills passed the legislature, the privileges and rights contemplated, as well by the companies as by Parliament, were merely those necessary to enable them to construct and maintain a road, which was to be open to all who might desire to use it, on the payment of a certain toll to the company. In fact, at that time, a railway presented no condition or features to distinguish it essentially from any other highway. But simultaneously with the

\* The question of the relative merits of the two gauges, involving many complicated points of practical engineering, is one upon which all that part of the world beyond the immediate profession of civil engineers, can only judge by the weight of authority on the one side, and the other among the members of the profession itself. Perhaps there never was a question on which so little real practical difference of opinion prevailed. Nearly the entire profession of England are in favor of the ordinary gauge. A few, *were it all to do again*, would have adopted a somewhat wider, but not the exceptional gauge. But none would now think of disturbing the uniformity which all agree to be of paramount necessity. The engineering profession of France, Belgium, the Germanic States, and other countries of Europe, and that of America, have adopted the ordinary gauge (56½ inches), although they were free to have selected a wider one. Thus, so far as regards engineering authority, we have in one scale the entire engineering profession in every country in the world; and in the other, the solitary individual authority of Mr. Brunel.

construction of these roads, the invention and improvement of the machinery for transport on them, made advances. The locomotive engine broke its shell and emerged in its incipient form. Its growth was rapid and precocious. The vehicles which it drew, and in which the business of transport was executed, were novel. In a word, a system of carrying mechanism, of an entirely new structure, was produced. This mechanism was made for the railway, and the railway made for it. The system had unity and connection. It was impossible to separate it; and the carrying business could only be conducted by those who had the direction and management of the railway. The companies, therefore, found themselves—by a necessity arising from the very nature of things, and whether they liked it or not—carriers as well as road-owners. Not only was this the case, but they were necessarily the *only* carriers. It was impossible even to imagine the public bringing their private engines and private carriages on the road. A colossal monopoly, never contemplated by Parliament, nor even foreseen by the companies themselves, had come into being.

The moment that it became apparent, in the practical results of the operation of railway in England, that these lines of communication must displace, in a great degree, if not altogether, the public highways, as well for the conveyance of passengers as for the transport of merchandize, it was perceived, in other countries, that the right of the state over all high-roads must be equally asserted over the new ways of intercommunication which were about to be substituted for them. But a further and more stringent power was everywhere claimed, as the consequence of the inevitable establishment of the monopoly of transport on these roads. The state must either assume that monopoly itself, as it does universally in regard to the conveyance of the correspondence of the public; or if it were conferred on private bodies, it must be under rigorously prescribed conditions and limited periods. Such were the broad general principles assumed, admitted, and acted upon, in every country of the world—*Great Britain alone excepted*.

In some cases, it was the policy of the state to reserve to itself not only the construction but the maintenance and working of the principal railways. An obvious advantage attended this. If it seemed expedient to the legislature, the transport of goods and persons might be used as a source of revenue; as the conveyance of correspondence generally has. Or, if the state were guided by a different policy, and considered facility of intercommunication an advantage paramount to revenue, it could fix the tariff so that the net produce would merely pay the expense of transport. Thus, as England sacrificed a portion of her revenue for the public advantage of a *penny postage*, other countries might consider it good to establish a system of *penny travelling*. The indirect advantages to the exchequer might more than balance the revenue lost.



Belgium acted on this principle with complete success. All the principal railways of that country are in the hands of the state; and the tariff is so regulated as to produce about four per cent. interest, on the capital invested in the construction of the lines.

In cases where the state decides against working the railways, it sometimes, wholly or partially, constructs them; and then lets them for a term of years, to a company who pays a premium for the lease, and completes the lines at its own charge, if they are unfinished. In these leases, there are various clauses restricting the power of the company—reserving a right of revision to the state, fixing the major limit of the fares, the conditions on which the state can cancel the lease, and the terms on which the line is to be surrendered by the company at its termination.

In Austria, the railways were, in the first instance, conceded to companies on leases for fifty years. But, subsequently, the government recovered by purchase the roads, and now for the most part the railways are under the control and management of the state.

In Prussia, the construction and management of railways are conceded to companies, subject to the control of the state. The tariff is subject to revision by the government, and the profits are not in any case to be allowed to exceed ten per cent. The companies submit their accounts annually to the Minister; and when, by a sinking fund established on prescribed conditions, the capital has been replaced, the tariff is to be so modified that the profit shall not exceed the expenses of the working lines.

In Bavaria, the lines are leased to companies for a term of years, the tariff being revised by the state annually, for the first three years after the opening of each line, and subsequently every third year. Privileges are in some cases conceded to companies—such as exemption from, or reduction of, the import duties for materials, and gratuitous occupation of the state lands. In some cases the state levels the ground at its own charge; in others, it executes the earth-works. In fine, the establishment of railways is generally a matter of bargain between the state and the company. The latter receives a lease for a term of years, for which it pays a certain premium. This premium is expended in the total or partial construction of the road. It submits to certain clauses authorizing the interference of the state with its tariff; and at the expiration of the lease, receives a fair value for its stock of moving power and machinery for transport.

In France, the system of railways, with a few exceptions, has been planned, and in many cases constructed, by the government, through the intervention of the department *des ponts et chaussées*. Ultimately the line is offered to competition by the Minister of public works, who names the major limits of the duration of the lease, and rate of the tariff. The company or individual who, complying with the other conditions, offers

in sealed proposals to accept the shortest lease, obtains the grant.

Before the successful establishment of some of the earlier passenger lines, the French government found it necessary to extend some further inducements to attract capital to these enterprises. Thus, in the cases of the lines from Paris to St. Germain, Versailles, Rouen, and Orleans, leases of ninety-nine years were granted. Since, however, the results of these first lines have become known, and capital has been elsewhere more generally attracted to railway enterprises, the state has effected much more advantageous bargains. The great northern line to Brussels has been taken on a lease of thirty-eight years; the Orleans and Bordeaux on a lease of twenty-eight years; the line from Tours to Nantes on a lease for thirty-four years. Of the entire system of French lines, there are not more than one hundred and twenty miles granted in perpetuity; and these are chiefly coal and mineral railways; established long before lines for passengers and general traffic were contemplated.

In the United States, the state governments have generally reserved, in one form or another, a right of control over railways. In some cases, they are themselves the chief shareholders; in some, they have lent to the companies capital at a low rate of interest; in some they have given the guarantee of the state for the capital raised. In all such cases, the right of control is admitted. In some cases, the dividends are limited to ten per cent, the legal interest of money being six or seven per cent. In some cases there is reserved a right of revision of the fares every four years. In some of the principal states—New York, Pennsylvania, and Virginia, for example—the charters of the companies contain a clause investing the legislature with an absolute right at any time of modifying them. Subject to such conditions, the railway charters in some states are not limited in duration; but in the principal states the duration varies from fifty to one hundred years.

By the system so widely pursued in France, and most other countries, the advantages arising from private enterprise are combined with sufficient security for the public, against the abuse of the powers entrusted to railway companies. Not only is a general power of supervision and control reserved; but the tenure of the companies being limited in duration, the entire internal communications of the country must revert to the state after a certain period. Thus, at the expiration of forty years, all the chief railways of France will be in the hands of the government; and in about ninety years, private companies will cease to exist—unless such as the government may think fit to re-constitute.

It thus appears, that England is the only country in the world whose legislature has committed the singular imprudence, of surrendering, without available conditions, and for an indefinite time, its public communications into private hands. That such mono-

polies can continue to exercise the powers granted to them, without the abuses to which all monopolies have been obnoxious, is not to be conceived. There are already tendencies manifested to struggle for the private objects of these bodies, against the fair claims and interests of the public. The railway companies, as they first acquired their rights of incorporation, were numerous. Each line was a separate property, and ruled by a separate Board of Directors. Although it appears that no such thing as a competing line is practicable, yet in this multitude of lines, there might be expected something approaching to competition; many small monopolies, it might be hoped, would check each other. The practice of amalgamation and combination, which has begun already to prevail so extensively, must, however, dispel these hopes. The lesser companies are severally gravitating towards, and coalescing with the greater bodies; and instead of a great number of small monopolies, in which the system commenced, it is now tending towards a small number of great monopolies, in which it must ultimately terminate.

The indisputable existence of these monopolies, and the liability of the abuse of their powers to the prejudice of the public, necessarily seems to infer the assumption of a corresponding control on the part of the legislature; for to suppose the indefinite continuance of an arbitrary power over the personal and commercial communications of the country, exempt alike from the operation of competition and legislative control, is an absurdity too palpable to be, by any one, seriously asserted.

It may, however, be contended that no case for interference has yet arisen, and that, when it occurs, it will be time enough to provide for it. But is it not certain, that measures have been already taken to neutralize the competition of the canals in the transportation of merchandise? It was proved before Mr. Morrison's committee, that some of the companies have already succeeded in getting possession of portions of canals, on which they have raised the tolls to their parliamentary limit; thereby paralyzing the business of the entire line, and driving the traffic to the railway, on its own terms. It is proved also, that in order to evade the provisions, few and ineffectual as they are, which the Legislature has made to check the evils of their monopoly, the larger and more powerful companies have created fictitious shares in enormous numbers, so as to make their capital appear larger, and their profits consequently smaller, and thus to exclude parliamentary interference, in the only case in which it was contemplated.

It may be said, that as Parliament has established limits to the tariff of railway traffic, so long as the companies keep within these, they should be subject to no interference. To this, however, it may be answered, that when these limits were fixed, the legislature had no sufficient data by which an equitable amount could be established. Can it for a moment be maintained,

that if, by any new inventions, railways could be constructed by the expenditure of half the capital sunk on those now open, and worked at half the present current expense, the public would not have the right to demand a proportionate reduction in the carrying tariff?

"If a new line could in any case be constructed for half the expense of an existing line, or, supposing the expense to be the same, if it were constructed by parties who would be satisfied with a dividend of five instead of ten per cent, parliament is bound to sanction the new line, unless the company make a corresponding reduction in the fares on the present line. One or other of these results must take place; for if the principle be true, that capital will force its way into those employments which yield more than the ordinary rate of profit, it will be impossible to maintain the monopoly and the high charges of the old companies."

The fares on British Railways are higher than on any other European lines. The first-class fares are sixty-three per cent. higher than those on the French and German railways, seventy-five per cent. higher than the Belgian, one hundred per cent. higher than on the Italian, and one hundred and sixty per cent. higher than on the Danish lines. The second-class fares are fifty per cent. higher than those of France and Germany, and one hundred and twenty-five per cent. higher than those of Belgium and Denmark. They are one hundred per cent. higher than those of Italy. The third-class fares are sixty-six per cent. higher than in Belgium, one hundred per cent. higher than in Denmark and Italy, thirty-three per cent. higher than in Germany, and fourteen per cent. higher than in France. In no other country are the working-classes conveyed in a manner so discreditable to humanity, and to the true interests of the carriers themselves. In short, it is evident that the abuses which have at all times and everywhere attended monopolies, have already manifested themselves in our Railway management, and are certain to augment, to the great prejudice of the public.

It would be folly to close our eyes upon the fact, that the British public has committed a serious error, in permitting the Legislature to proceed from session to session, in the course of legislation which has prevailed in regard to railways. With an enlightened public, a vigilant and free press, an unrestricted right of discussion and petition, and the habit of the legislature to wait for the expression of public sentiment on such matters, it would be unjust to throw upon Parliament, or the administrations of the day, the exclusive blame of the mistake that has been committed. The public itself must bear the principal share of that blame. What is the actual state of the case? A new method of intercommunication was discovered, infinitely exceeding all former methods in cheapness, expedition, certainty, and regularity. Surely this rare opportunity ought to have been seized, to procure

the establishment by law of a suitable administrative body, under which a prudent system of inland communication might be constructed. But what, in fact, has been done? In this, the most active country in the world, with a press absolutely free, with unparalleled facilities for the diffusion of knowledge, and the most perfect of all representative governments, we have passively surrendered the entire system of national highways, without a single practicable reservation or exception, into the hands of a number of private individuals, to deal with us and our posterity, so far as respects our intercourse with each other, as may seem best to them and their heirs, now and forever. England has ceased to possess highways. The country is intersected only by roads, which no one can use except by the permission and on conditions prescribed by their owners!

Although it be not till the eleventh hour, still, the attention of Parliament has been called to this most important subject; and measures are in progress which, it may be hoped, will correct these evils, as far as retrospective legislation can correct them. The right of Parliament to establish a system of reasonable control over the inland communications of the country, cannot, as we conceive, be denied. All practicable competitions having ceased to be possible, administrative control must supply its place. A Board of Railway Control must be established. But, to be really useful, it must be invested with powers much more extensive than those possessed by the late railway department of the Board of Trade. The great object of the government should be, to bring the power of such a body to bear on the existing railway companies, in such a manner as to protect the public from the abuses incidental to them, without violating in spirit that contract, whatever it may be, which they may have made with the State. The benefit of such a system of control, rightly administered, will not be confined to the public as opposed to the monopoly of the companies. It will extend to the companies themselves—some of which have already discovered that the maximum of profits is not necessarily attained by the maximum of fares; and that it is possible to consult the interests of the Public, by moderating their tariffs, without endangering their prospective dividends.

#### Lewiston and Waterville Road.

The Portland, (Me.) Advertiser says that, some very interesting statistical facts have been placed before the public in relation to this road, which cannot fail to have produced an impression favorable to the project. This is no visionary scheme—no idle speculation, but a grand, substantial, practical measure, which must give large and permanent prosperity to Maine. We do not fear contradiction when we say that it will form the grand trunk of railroad communication through the state. Before it is completed to Waterville, measures will be in progress to extend it to Bangor, where it will then have but half accomplished its object.

The length of the contemplated road from

the present terminus of the Atlantic and St. Lawrence road, to Waterville, is about 48 miles; the estimated cost of the road with all its equipment falls short of one million of dollars. The road extends into the midst of a fertile country, occupied by a busy, active and enterprising population; and taking all things together, the most productive in the state.—It passes through towns and villages full of manufacturing industry and resources, which send now to the sea board their thousands of tons of produce and manufactures, and their tens of thousands of passengers annually.

The road will command the business of the counties of Franklin and Somerset, and a considerable portion of Kennebec, Piscataquis and Waldo, to which it will afford facilities, which will give an immensely accelerated force to all their resources and energies. The people upon the whole line of the road and through the large region which will be opened to a market by it, are prepared for action. They have already resolved that the work shall be done. They have commenced a liberal subscription toward it, to which liberal additions will be made. They ask of Portland to respond to this noble effort; they say, give us \$100,000 or \$150,000, and we will soon send into your beautiful city, trains of freight and passengers which will astonish the incredulous.

And will not Portland heartily respond to this patriotic call? It is but loaning the money on the best security. The recent dividends of 4 per cent. semi-annually, in the Lowell, Providence, Worcester, Taunton Branch and Eastern roads invite us to invest; and from a careful comparison of all the statistics relating to this projected road and those of Massachusetts, we do not hesitate to say that the stock in none of them will go before that in the Lewiston and Waterville company for the amount of profit.

By a vigorous action now, we shall secure this great privilege: we strengthen the hearts and hands of its friends in the country, and give it an impetus which will push it through every obstruction.

We hazard the prediction, which may seem bold to some, that when this road is completed, or even before, a branch will be made to Gardiner or some other point on the Kennebec, which will afford a cheaper mode of communication than any they will otherwise have between the river towns, and Portland and Boston.

Railroads are the great works of our day; they furnish the most desirable means of investment; they open uncultivated lands to a profitable and useful culture; they give life, activity and value to unemployed water power, dormant energy and capital; they build up waste places, increase the power and prosperity of states, and promote national aggrandizement.

Let the people of Portland come forward now and aid this great enterprise, which will give a permanent prosperity to all their interests. They have done nobly for the great Canada road, and for the iron company which is to put on it, the winged steeds; "Once more into the breach my friends, once more!"



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

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Saturday, January 9, 1847.

## PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

### Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from' Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
Sfr Engineer and General Superintendent.

### Little Miami Railroad. Superintendent's Report.

In another portion of this day's Journal, appears the Superintendent's Report of the Little Miami Railroad Company, for 1846. The reader is referred to the official document, for the details of the condition of this road—by which it will be found that the receipts have reached a higher amount than was looked for, at the last annual report—though the amount does not come up to the maximum, which the business of the country would have guaranteed, but which has been lost to the road, on account of the deficiency of their motive power. An additional business is brought to this road, by the opening of the line to Springfield, but a very serious accident which occurred by a collision on the 13th of August last, the failure of the builders to furnish (as per contract) certain locomotives and cars, in season for the fall trade, and other causes, duly enumerated—account for the deficiency of the receipts; matters which will be corrected at an early day, if the recommendations of the able superintendent are acted upon. Mr. CLEMENT has exhibited the most untiring energy in the discharge of his duties as Superintendent upon this road, and we are glad to learn that the prospect ahead, promises very favorably for the company.

### Central (Pa.) R. on the Canal Towing Path.

We find, in a recent number of the United States Gazette, a communication from F. P. Holcomb, Esq., in relation to the construction of the Central Railroad to Pittsburg, on the towing path, or bank of the canal. He goes into the calculation, and makes it appear that the cost of construction—in the event of using the Portage railroad as a part of the line—will be much less, and the line much better, than by any other route yet indicated. He might also have said—what is equally important—that it can be completed in less than half the time of any other line.

If Mr. Holcomb's suggestions meet with equal favor in this, as in another case—we refer to the New Haven canal—he may consider himself highly complimented. By referring to the tenth volume, page 360—or the number for June 15, 1840—of the Railroad Journal, will be found a communication dated "Engineer Camp, Central Railroad, Georgia," in which he recommends the construction of

a railroad along the canal to Northampton, and gives an estimate of its cost. Little disposition, it is true, was then manifested to carry out this suggestion; and years passed before it was acted upon; but the work is now in course of construction, for at least a part of the way; and so may his more recent proposition meet with favor. We shall give his letter at length in our next—long as it is for our pages—that he may speak for himself.

### Iron Rails in England.

We are indebted to an eminent mercantile firm in New York, for the following extract of a letter, giving the results of practical experience in England on this subject. They say "it has been ascertained by practical experience in England, that the rail, necessary for rapid movement over it, or for the conveyance of merchandize, should be heavier than the rail now in use there. The extract from a letter now before us—written by a practical and intelligent gentleman in England, largely interested in railroads now under construction in the United States, and of course desirous that said roads should be well constructed for speed and heavy traffic—says, (under date of 2d December, ultimo:) 'The experience we have obtained here, is, that the usual weight of iron heretofore used, of say sixty-five pounds to the yard—will not suffice for the rails—if the speed of travel and weight of traffic is to be carried forward. Our express trains now travel from forty-five to fifty miles per hour, and carry enormous weight of merchandize, which has already led to the necessity of changing the weight of rail to eighty pounds per lineal yard—and many are calculating on the necessity of going to one hundred pounds per yard—as a matter of economy to guard against the necessity of taking up a lighter and laying down a heavier rail. We call your attention to these points, and request you to so state it to the companies now constructing roads, in which we may be stockholders—that they may avail of our experience in this country as a guide to a right construction of a road intended for rapid travel and conveyance of produce and merchandize.'

Our own observation has led us to the same conclusion; and we have no doubt but that, on all our main lines, rails of 75 to 100 lbs. to the yard will be ultimately used; it is therefore important that they should, as far as possible, be constructed originally with the heavy rail.

### Atlantic and St. Lawrence Railroad.

In reply to our request, we have the following interesting letter, dated Portland, December 26, 1846, from Mr. Septimus Norris. He says:—"According to promise, I now beg to hand you, enclosed, a map, showing the different railroads connecting the Atlantic cities with the western lakes; and, at one glance, it will be perceived Portland has by far the greatest and most unquestionable advantages over any other Atlantic city, being but 280 miles—Boston 525—New York 475. I would suggest to you the propriety of having a wood cut made of a map half the size sent you, showing the different routes—and, as I can get no better or more correct information, I have the consent of A. C. Morton, Esq., chief engineer of the Atlantic and St. Lawrence railroad, to make my extracts from his report, a copy of which I also send you."

There is but one summit, or main dividing ridge, between the waters which flow into the St. Lawrence and those flowing into the Atlantic; and the approach to the summit is through the valleys of large streams, affording long and easy slopes for overcoming its elevation. The principal highlands intervening between the St. Lawrence and the At-

\* We have received the map, but not the report alluded to.

lantic, are the White and Green mountain ranges. The former is crossed through the valley of the Androscoggin and Ammonoosuck rivers, with no inclination exceeding 40 feet per mile; with but a slight undulation in the grade of the road, and no heavy work whatever. The latter extends into Canada, but falls off as it approaches the St. Lawrence basin, and is principally avoided by following the valley of the St. Francis and Black rivers. There is no line of equal extent, connecting the western waters with the Atlantic which will compare with this for the great extent of easy grades, straight lines and cheap construction. While other lines are subjected to great disadvantages from steep grades, abrupt curvature and excessive cost, this is happily exempt from nearly all.

A large portion, equal probably to one-half the whole of this road, will be either level or of inclinations not exceeding 20 feet per mile. The curvatures are all easy, and nearly equivalent to a straight line. Passenger trains may pass on the whole road in the space of ten hours, and the largest class freight engines will be able to transport 200 tons over the road in either direction.

As regards the cost of transportation on the St. Lawrence and Atlantic railroad, the most satisfactory information would be gained by comparing it with some line of nearly equal extent and facilities and designed for general trade.

Perhaps no other road, at present in operation, approaches nearer to it, as it regards its object and design, than the Western railroad in Massachusetts; yet the cost of transportation on this road will much exceed the St. Lawrence and Atlantic, from the more unfavorable character of the grades and large amount of curvature. On the Western road there are three elevated summits, to surmount which the following grades are required, to wit:

3	miles of 60 feet per mile.
14	miles of 68 and 69 feet per mile.
5	6-10 miles of 74 feet per mile.
6	miles of 78 and 79 feet per mile.
2	miles of 82½ and 83 feet per mile.

The total rise and fall is over 4000 feet. The length of curved line on this road is 75½ miles, or 48 per cent. of its whole length, and the minimum radius 859½ feet.

Relative to the grades on the road from Montreal to Portland, the inclination probably, on one-half the whole distance, will not exceed 20 feet per mile. The maximum grade, as indicated by the surveys thus far, will be 50 feet per mile, and this is confined to comparatively a short distance. It is believed that from 80 to 90 per cent. of the whole road will be straight, and the curvatures will be easy.—In the comparison, therefore, of these roads, it is believed that we are fully sustained by the above facts in the conclusion that the cost of transportation on this road will not equal, but fall considerably below that on the Western road.

The gross receipts of the Western railroad for 1845, was.....	£203,300
The total expense of operation of the road for 1845, was.....	92,655

The net income was.....£110,715

The St. Lawrence and Atlantic, and the Atlantic and St. Lawrence railroads,\* will be about 280 miles in length, 130 miles of which are in Canada, and the net annual income, supposing it to be in the same proportion as the Western road, and the cost of the road, £2,000,000, will be equal to an annual dividend of 10 per cent.

It will be observed that, in the above estimate of

\* The first extending from Portland to the line, and the latter from Montreal to the line.—En. R. R. J.



revenue, it is assumed that the cost of transportation on the Atlantic and St. Lawrence road will be as great as on the Western road, which evidently will not be the case. And it is also assumed that the cost of the whole road to Portland, will be two millions pounds currency; which is a much greater sum than it has been estimated to cost.

Applying as above, the business of the Western road for 1845 to the Atlantic and St. Lawrence, and assuming the cost of the road to be £1,750,000, the net revenue gives a dividend of 11½ per cent.

In the construction of the Western road, great obstacles were to be overcome. A mountainous section of country was to be crossed, requiring, as already stated, heavy grades and a large expenditure of money. To give an idea of the formidable obstacle encountered, I would state that one section of this road, known as the Mountain Division, comprising a distance of 14 miles, cost £245,000 or £17,500 per mile, and a single mile cost £54,982. The total cost of the road up to January 1, 1846, was £1,999,888.

In its business, it has to contend with a strong competition, with steamboats on the Hudson river and another railroad. Notwithstanding these unfavorable circumstances, the gross receipts in 1845 was, £203,307, and its net receipts for the present year, will probably equal a dividend of over 6 per cent. on its cost.

With reference to the Atlantic and St. Lawrence railroad, as a great thoroughfare, it occupies a most remarkable position, connecting, as it does, the St. Lawrence and the Atlantic, at a point where the New England coast approaches the nearest to the western waters, and having a large and populous city at either terminus, with capacious harbors and a rich intervening country, it cannot fail to be one of the most important and profitable roads yet commenced. From its peculiar position it never can be subject to competition. It is the shortest and cheapest channel through which the travel and trade of the provinces can reach the sea board.

With a long line of natural and artificial communication connecting Montreal with the western waters, and the far west, it cannot be doubted that the completion of this last link will change entirely the channel of trade; open new resources; and add vastly to the business of the public works of the province, and to the wealth and enterprize of the country through which it passes. To the city of Montreal it is of vital importance, situated, as she will be, at the foot of this long line of communication on the one hand, and within 10 hours ride of one of the best harbors of the Atlantic coast on the other, she must unavoidably receive large accessions to her trade and commerce, and a vast increase of wealth.

The foregoing, and an inspection of the map, will prove to any ordinary mind that Portland is destined to be a great commercial city, and will, in a few years, go far ahead of Boston.

You are, perhaps, aware, that I have received a contract from the Atlantic and St. Lawrence railroad for all the engines, car castings, etc., required for this road, all of which are to be built in Portland. I am also in treaty with them for the supply of all their rails, to be manufactured here.

A company has been chartered, and stock subscribed to the amount of \$250,000, called the Portland company, of which I have the appointment of director and chief engineer. We have purchased about eight acres of land in the city of Portland, having a wharf on the harbor of 900 feet, upon which our buildings are now erecting, and, by the 1st of April, I hope to have 500 operatives at work,

manufacturing rails, locomotives, cars, castings, etc., for the Atlantic and St. Lawrence railroad.—Portland has now become my home, and I assure you I have no regret at leaving Philadelphia, where I have resided for the last ten years, for I have been received here by the citizens with great cordiality, which makes me already feel at home.

I will, if you wish, again address you, giving you the progress of the Atlantic and St. Lawrence Railroad, etc., which, no doubt, will prove interesting.

Your friend, sincerely,

SEPTIMUS NORRIS.

#### Railroads—The Telegraph—Sundries.

We collate from our list of exchanges for the last week, the following items of interest.

The whole amount of the stock of the New York and New Haven road—\$2,500,000—has been subscribed without condition, and the contractors and engineers are busily engaged on the line preparatory to letting the sub-contracts.

From the late letter of Mr. McLane, president of the Baltimore and Ohio Railroad, the *Pittsburg* journals have discovered that their city was not to be benefited by the grant of the "right of way," so much as they supposed. Mr. McLane very frankly admits that the object sought was a connection with the Ohio river at a point much lower down than Pittsburg, and the connection with Pittsburg only a subordinate aim. The avowal has abated the zeal of the people of Pittsburg, and they are advised, through their journals, to cease to look forward to a connection with *Baltimore*, and direct their means and energies to other works—those of connection with Philadelphia or the lakes.

The *New York Journal of Commerce* states that upon the canal railroad, leading from New Haven to Collinsville, along the line of the Farmington canal, the grading is already commenced. On the line from New Haven to New York, it is to be commenced in a few days. The Hudson river railroad is gaining considerable accessions to its subscription list, and its friends are increasingly confident that it will be made, and that speedily. The Housatonic railroad gets nearly all the travel from Albany to New York. The Erie is going forward with a good deal of energy, and measures are in progress for connecting at several points by lateral railroads, with the railroad from Albany to Buffalo. A general convention of the friends of the Air line railroad from New Haven to Boston, is to be held at Middletown in the course of a week or two.

The bill to charter a railroad from Raleigh via Fayetteville, to Camden, S. C., as well as the bill to charter the Wilmington and Manchester road, have been passed by the North Carolina Legislature.—South Carolina (just adjourned) also granted similar charters.

We learn from the *Kennebec Journal*, that the citizens of Hallowell held a meeting at the town hall on Wednesday evening, on the subject of the railroad. A report was made of the state of the subscriptions in that town, and measures taken to increase them. The meeting was addressed by gentlemen of Hallowell, Gardiner and Augusta, and before adjournment, it was voted by acclamation that a mass meeting for the towns of Hallowell, Augusta and Gardiner be holden on Saturday last, at 10 o'clock, at the town hall, and that the citizens of those towns, one and all, be invited to attend.

At a meeting on Monday evening last, at Bath, the project of a railroad from Portland to Augusta, Me., by way of Brunswick, with a branch to Bath, was considered by the citizens of that place; and it was resolved, unanimously, that the citizens of Bath

will have a railroad under the Portland and Kennebec charter; and that said road should eventually pass through Waterville to the Penobscot; and that they are opposed to any railroad from Portland to the Kennebec, that does not connect with Brunswick and the principal towns on the Kennebec river. It was also resolved, that it is expedient—and the directors are requested—to commence the railroad between Brunswick and Portland, as soon as in their opinion a suitable sum is subscribed therefor. This is a good move, and we are happy to see the disposition evinced in Maine, to have a railroad connection between their commercial city and the capital of the state.

We regret being obliged to allude to a most discreditable occurrence, which took place at the Tabernacle, in New York city, last week, upon the occasion of a meeting of the citizens there, to give Mr. Whitney a hearing upon the subject of his great railroad project to Oregon. However parties or communities may differ in opinion in regard to the feasibility, or present practicability, of this immense scheme, or in reference to its originators, we cannot but enter our protest against all attempts like the one we speak of, to injure the projector or the plan, by such means as seems to have characterized this scene. It appears from the *New York accounts*, that the meeting was called in due form, and the Mayor of the city was called to the chair, but while Mr. Whitney was explaining his views, there was considerable noise from certain of the national reform party gentlemen, who think that what the nation possesses, ought to be divided at once among the people! After Mr. Whitney had closed, a Mr. Ryckman made a speech against the plan. He had some resolutions which he would read, in spite of the call of his own party for a person named Shepherd.

The *Courier and Enquirer* adds that, "having got through these MS. resolutions, the cry for *Shepherd* was most tumultuously and uproariously renewed and continued—until it soon became manifest that no rational proceedings could be had, and after in vain endeavoring to restore order, or obtain a hearing, his honor the mayor, after consulting with some of the Vice Presidents, put on his hat, and with the other members of the meeting, left the platform, declaring the meeting dissolved. An instantaneous rush was made for the platform, by these friends of equal rights and universal agrarianism, and a Mr. Comerford began forthwith to hold forth to all who remained in the tabernacle; when, in the mid volley of his eloquence, the gas was turned off—and sudden darkness fell alike upon audience and orator. The effect was electric—with a shout of laughter, the disturbers turned from the invisible spectre and groped their way hastily into the wet streets.

"And thus disgracefully ended a meeting, invited under the most respectable auspices, of citizens, calmly to consider a great national project—in which this city has a special interest. The disturbers were men who, for the most part, have little or no interest in the city, and whose element of existence and notoriety seem only to be strife and opposition to all settled principles and established law.

"It was the triumph of agrarianism—lawless as landless—and well fitted to make reflecting men shudder, when a peaceful and legal meeting, for an honorable and patriotic purpose, could thus be converted into a bear garden."

Our regret for such an occurrence is most sincere. The great commercial emporium of the "Empire State" should do better—and treat a project of this character rather differently.

GOVERNOR SHUNK alludes to the great Central (Pa.) railroad as follows, in his late message. He says—"Some apprehensions have been expressed, that the construction of the great Central railroad, between Philadelphia and Pitsburg, may be the means of diminishing the income from the improvements of the state. In this I do not concur; on the contrary, I entertain the opinion, that the increased commerce which it will invite between our great eastern and western emporiums, and the regions which connect with them, will not only add to the revenue of the Columbia railway, but will greatly increase the productiveness of all our public works. Such, I believe, has been the experience of New York, and such, I doubt not, will, in a very few years, be that of our own commonwealth."

An exchange paper states that the first bar of American railroad iron was made in 1844, and there are now sixteen or eighteen mills, at which it is made; at the rate of about one hundred and twenty thousand tons per annum. This amount is sufficient to lay four miles of railroad per day, or twelve hundred miles per year. The progress of this manufacture, in the short space of two years, in this country, is very remarkable and is a striking manifestation of American enterprize and skill.

We perceive by a paragraph in the New York Sun, that Mr. Isaac Meikle, of Camden, N. J., is applying gun cotton to the propulsion of machinery in his factory. The engine is constructed on the ordinary horizontal steam engine, only there are two cylinders, one working in the other. The gun cotton is ignited by electricity, engendered and applied in a novel manner. Any degree of power may be obtained. It is said to be safer than the ordinary steam engine, and one person can run it.

Telegraph lines are being extended rapidly in all directions, and the time is not far distant when the extremes of our land—east, west, north and south—will be brought, by this means, within a few hours, perhaps minutes, of each other.

But a few days since, a message was transmitted along the lines from Buffalo by the way of New York and Philadelphia to Pitsburg, a distance of 950 miles by the wires, and an answer returned to the starting point in less than two hours, counting all detentions it met with at the different stations. Nineteen hundred miles were thus traversed in this short space of time by the message and the response!

The line between Philadelphia and Pitsburg is now in perfect order. A slight disarrangement caused a stoppage on Tuesday, which was obviated the next day, and the communication resumed. The Pitsburg papers publish every morning, the reports of the markets in Baltimore, Philadelphia and New York, up to the previous evening. This shows the great benefit of the Atlantic and Ohio Telegraph, and the energy and enterprize of the publishers.

GOVERNOR YOUNG commenced reading his message at Albany at twelve o'clock on Tuesday, and at four o'clock in the afternoon, it was published entire in New York city, in an extra. The message contained 5,000 words, or 25,000 letters, and was written from two instruments in the Albany office, by Messrs. Carter, Buell and Johnson, and read in the New York office by the Messrs. Woods, at the average rate of 83 letters per minute, or two and a half hours for each instrument. Professor Morse's original estimate to Congress for the despatch with which communications could be sent by his telegraph, was thirty letters per minute; here we see the number almost trebled, in a long public document. The press had arranged to receive the message by two other routes, viz: one by horse down the

banks of the Hudson, and the other by the Housatonic railroad. The lightning came in first, the horse next, and steam last.

We learn from an exchange, that the New York and Buffalo line of telegraph company, have declared a dividend of three per cent. for the past four months. This is the first magnetic dividend ever declared. The earnings of the line have been about \$11,000 since 7th September, of which the expenses have absorbed about one-third. Of this dividend the patentees get \$2700, which may be considered the first practical result of this great discovery.—This line has now established the fact that magnetic telegraphs, when well managed, are a safe and profitable investment.

Cincinnati papers received up to January 4th, give some melancholy details of destruction, caused by a flood in the Big Miami on the 2d. Five lives were lost. The Cincinnati and Dayton canal is swept of bridges, and is broken and overflowed.—The Whitewater canal is almost irreparably damaged. The loss in lumber, flour, hogs and pork, is immense, and the destruction of mills, &c., is fearful.

The report of the engineer and superintendent of the Little Miami railroad will be found in this day's Journal. We have referred to it particularly, in another portion of our paper.

The interest evinced in the railroad direct from Boston to New York, is on the increase, and we are happy to find that the subject meets with general favor along the entire line of the proposed route.—We shall be greatly rejoiced when this important work is fairly under way, and present indications are decidedly favorable to its early consummation.

#### Pittsfield and North Adams Railroad.

We are indebted to William H. Power, Esq., superintendent, for the following statement.

"The winter arrangements on this road are as follows, viz:

Leaves North Adams, daily, at 8 A.M. & 4 P.M.  
Leaves Pittsfield " at 11 1/2 " & 8 "

"On the arrival of the train at noon at North Adams, stages leave for Williamstown, Hoosac, Pownal, Bennington, Manchester, Salem, Union Village, Rutland, &c.

"At Pittsfield, the trains connect, to and from, with all the W. R. R. trains, and with the mail line to Lenox and Lee.

"Length of road from North Adams to Pittsfield, twenty miles; fare sixty cents; time, one hour; stopping at South Adams and Cheshire, each way."

The contracts for the construction of this road were not made until the 20th December, 1845. It was completed and in use in 1846, and is now doing a very good and increasing business. Its extension to Rutland is not, we are sure, very distant.

#### Mining in Australia.

Within a few years past, a large number of the laboring portion of some of the mining counties of England and Wales, have taken passage for South Australia, and the emigration is increasing. The following letter, published in the London Mining Journal, is from a Mr. James Curnow, who left Cornwall for Port Adelaide in 1841, and is addressed to a friend in Penzance. If its statements be not highly exaggerated, South Australia is indeed the "land of promise:"—

I now fulfil my promise, made on my leaving in 1841, of furnishing you with some information which may be useful to many of my friends in Cornwall, and others intending to proceed to this part of the world. I shall

carefully guard against any representation that may mislead, or exaggerate, and the facts I shall state may be relied on. The most attractive element of wealth now known in the colony, is unquestionably our minerals. The quantity of copper ore jutting out on the surface, is incredible, and I am confident is not equalled in any known part of the world. The quantity of ore raised at the Burra Burra copper mines, in six months, is 2900 tons, which produce has been obtained by 30 to 50 working miners—in fact it has not been mining, but more properly quarrying. The miners of Cornwall will easily understand the importance of this mine alone: I could enumerate eight or ten others, of a most valuable description—but this one will be sufficient to show the extraordinary nature of this province in a mineral point of view; as an illustration of which, I would direct attention to the quantity of ore shipped to England, including several cargoes direct to Swansea, in the short space of two years, with a mining population not exceeding 200.

• • • • • The other metals found here are lead, silver, and gold—a rich vein of the latter having been found in several places in the virgin state. There are other metals reported to have been discovered, but which I have not yet seen—such as tin, quicksilver, platina, etc. The money paid to government within a short time, amounted to about £80,000; and on Saturday last, £30,000 worth of land was purchased at public auction for mining purposes. Besides this, one or two special surveys, of 20,000 acres each, are about to be secured by old settlers, in a new district, which is most important, as the breadth of the area of our mineral district will thereby be considerably extended. Ores having been found on the surface in numerous places for about 150 miles in length, running north, and about 80 to 90 miles in breadth, from east to west. In fact, on other parts settled, such as Port Lincoln, beyond these limits, various discoveries have been made, and yet we are comparatively ignorant of the real extent of our mineral wealth. The greatest want now felt, is the scarcity of labor of every description, but more particularly of working miners. I can state, from personal knowledge, that tributaries have been getting lately from £6 to £20 per week, and men that never saw a mine before, get £2 per week. These wages are further enhanced by the low cost of provisions and other necessities of life. To give some idea to those unacquainted with the variety of productions which abound in this colony, I may enumerate the articles of wool, grain, gum, bark, whalebone, and oil, which, themselves, are enough to make this a prosperous community. I think I may say with truth, that such a concentration of the elements of wealth that we possess, is without precedent. The climate of South Australia is most healthy. The general opinion in England as regards the supply of rain, is very incorrect. The experience of ten years shows that no real scarcity of water has been experienced during any one season. The hot winds which prevail during summer for a short time, are, I may say, the only drawback in this colony.



## Superintendent's Report.

OFFICE LITTLE MIAMI RAILROAD CO.,  
Cincinnati, December, 1846.

To the President and Directors of the Little Miami Railroad Company.

GENTLEMEN—Below will be found a statement of the receipts and expenditures of the transportation department, for the year ending the 1st inst, together with such suggestions as the experience of the past year has furnished, in relation to the management of this department generally.

The receipts amounted to a larger sum than was anticipated at the date of the last annual report, but have not reached the maximum by a large per cent which the business of the country would have allowed, had the motive power and car departments been adequate to meet the demands upon them. One only, of the four locomotives ordered last winter, has been placed upon the track in time to be of service, since the date of the last report.

This failure on the part of the builders, together with the collision of August 13th, which rendered useless for two months, the only effective passenger engines on the road, have been the fruitful sources of delay and embarrassment in the management of the road, and disappointment and loss to shippers.

The motive power is at present so deficient, compared to the demands upon it, that the most trifling accident, or the time required to make the ordinary repairs, which, under other circumstances, would not be worth a second thought, become matters of serious importance, inasmuch as the loss of a trip is involved.

Since the date of the last report, the wooden rails and cross-ties have been renewed for the distance of ten miles, between Milford and Foster's Crossings, in addition to the ordinary repairs on the remainder of the line. About an equal distance will require renewal in the same manner the coming year.

The six miles next to the city of Cincinnati, remain in the same condition as at the last report, with the exception of such repairs as were considered necessary to keep the track passable.

At several points on the lower part of the road, slides occur after heavy rains, which interfere with the business of the road during the winter months. About eight hundred lineal feet of wall has been put up to guard against these slides, and its erection will be continued as fast as circumstances permit.

I would again call the attention of the Board to the importance of relaying this portion of the road with an  $\square$  rail. Another season cannot be allowed to pass without relaying it in some manner. The thin iron at present in use upon it, can be taken for the additional side tracks rendered necessary by the increasing business of the road; which if not procured in this way, must be provided in some other, thus adding (in case an  $\square$  rail is not substituted at once) to the eventual cost of relaying with heavy iron.

The estimated cost of relaying with an  $\square$  rail, including materials, labor, ballasting road bed, etc., per mile, is as follows:

100 tons rails, chairs and spikes, at \$70. ....	\$7,000
Ballast.....	800
2300 locust ties, at \$40.....	920
Other materials and labor.....	900

Less value of old materials, say.....	2,300
	\$7,320

The cost of repairs of machinery, superstructure and road bed make up an important item of the expenditures, and this will continue to be the case, with a large freight traffic on a light plate rail like ours. Four years is the extent of time that we can rely upon the best white oak timber as a string piece, and after the third year the track frequently requires extensive repairs. A sufficient quantity of timber is on hand and under contract to be delivered, for our probable wants the ensuing year.

The trestle work over the island at the Little Miami river has been braced and otherwise secured, but will require extensive repairs, or filling up with earth at an early day. All the materials for a bridge of the longest span on the line are being delivered, and so soon as the delivery is completed, the bridge will be framed and placed under roof, ready for any emergency that may occur.

Under the head of repairs of locomotives is included damages caused by the collision of the 13th August, and replacing the frame and fire-box of the "Governor Morrow."

The attention of the Board is earnestly called to the necessity of erecting suitable shops for repairing locomotives and cars.—As at present arranged, the cost of repairs is greatly increased over what would be necessary with convenient buildings, and is attended with useless delay in many instances.

Some arrangement should be made to reduce the grades in Front street and through Fulton, or to remove the track out of the street entirely. This last will undoubtedly be the better plan, if the means of the company permit, as the street is narrow, and constantly thronged with wagons and carriages. At present an extra locomotive is employed whenever the condition of the machinery will permit, and an extra set of hands all the time.

This expense would be entirely avoided, and a considerable saving made in wear and tear of machinery, by a change of location.

The machinery, with the exception of one locomotive, is in good repair. The motive power consists of:

- 1 10 ton, six wheeled engine;
- 1 12 ton, eight wheeled engine;
- 2 13 ton, eight wheeled engine;
- 3 15 ton, six wheeled engine, (connected);
- 1 16 ton, eight wheeled engine, freight, (upon the track, but not in use.)

One six wheeled connected engine, and one eight wheeled passenger engine, are now on their way via New Orleans, and three more, one freight and two passenger engines, are under contract to be delivered in May. There will be required in addition, one freight, and one passenger engine.

## NUMBER OF CARS.

8 wheeled passenger cars.....	7
8 wheeled baggage cars.....	3
8 wheeled freight cars.....	42
4 wheeled freight cars.....	51

Contracts have been made for 35 eight wheeled cars in addition.

Number of miles run by passenger, freight and gravel trains during the year.....	103,950
Average cost per mile run, including current expenses for all purposes.....	62.3 cents.
Passengers carried for the year.....	54,265

Of this number, one lost his life in attempting to get on a train while it was in motion, at Milford, in December last. As far as is known no other passenger has received the slightest injury.

## RECEIPTS AND EXPENDITURES

On Account of Transportation, for the year ending 1st December, 1846.

For carrying passengers.....	\$51,190 11
For carrying freight.....	64,861 91
Total.....	\$116,052 02

## EXPENDITURES.

For renewing rails and ties on 10 miles of track, and the ordinary repairs on remainder of superstructure.....	\$10,960 04
For repairs of bridges.....	539 16
For repairs of road bed, ordinary and extraordinary.....	6,962 69
For repairs of cars.....	4,026 89
For repairs of locomotives.....	7,987 46
For repairs of machinery.....	227 87
For oil and tallow.....	1,204 86
For fuel.....	7,494 14
For rent.....	2,191 74
For loss and damage.....	658 82
For repairs of water stations.....	140 55
For transportation, expenditures, including wages, salaries, horse power, etc....	22,372 68
Total.....	\$64,766 90

## RECAPITULATION.

Total rec'ts on account of transportation.....	\$116,052 02
Total expenditure.....	64,766 90

Total over current expenses.....\$51,285 12

A Statement of the Amount Received each Month in the Year, for Carrying Passengers and Freight.

	Passengers.	Freight.
1845 December.....	\$3,618 76	\$4,261 07
1846 January.....	2,782 10	6,013 21
February.....	2,446 45	5,285 96
March.....	3,071 65	5,295 70
April.....	3,442 11	5,404 63
May.....	4,130 17	3,630 33
June.....	4,346 58	3,108 21
July.....	5,063 04	2,857 97
August.....	5,976 59	6,242 16
September.....	5,966 17	5,900 65
October.....	6,007 78	9,206 06
November.....	4,318 71	7,646 96
Total.....	\$51,190 11	\$64,861 91

A Statement of the principal articles of Produce transported on the road, for the year ending 1st Dec. '46.

Apples, clover seed and eggs.....	barrels 2,677
Beef, pork and lard.....	" 12,245
Molasses, oil, vinegar, cider, etc.....	" 3,131
Whiskey.....	" 32,977
Wheat and buckwheat flour.....	" 81,251
Lime.....	" 4,346
Salt.....	" 7,337
Empty barrels and kegs.....	5,064
Merchandise, sundries and furniture.....	pounds 6,146,096
Iron and nails.....	" 2,305,105
Pork and bulk meat.....	" 2,535,625
Paper and rags.....	" 491,133
Butter.....	" 368,413
Castings.....	" 925,474
Hay.....	" 87,701
Lumber.....	M feet B. M. 313,911
Hoop poles and staves.....	M 212,607
Shingles.....	" 1,631,350
Malt.....	sacks 3,550
Barley and oats.....	bushels 14,773
Corn, wheat and rye.....	" 121,270
Potatoes and turnips.....	" 3,229
Coal and coke.....	" 40,894
Live hogs.....	number 4,791



Two additional water stations have been erected on the lower part of the road during the past year, and the number will still require to be increased, in order to prevent, as far as possible, delay in bad weather. Some irregularities have occurred in the arrival of the mail during the latter part of the year, in consequence of the inefficient class of engines we have been obliged to employ, and the utter impossibility, with the small number in the possession of the company, of keeping them in working condition. The number and class of the locomotives ordered and on their way, for the use of the road, will furnish, it is presumed, an effectual remedy; and no doubt is entertained but that all just ground for complaint will be removed in a few weeks.

The time allowed by the card between Cincinnati and Springfield is five hours, forty minutes. This includes the delivery of the mail from the postoffice to the depot, and 1½ miles of horse power, and requires an average speed of 16 miles an hour, including stoppages after the locomotive is attached. This, it is believed, is as high a rate as a proper regard for the preservation of the road and machinery will permit.

The total length of the main track is 84 miles.

*A Statement of the Quantity and Average Cost of Earth Work and Masonry on the Little Miami Railroad, up to 1st December, 1846.*

Yards.	Average Cost
977,585 Embankment .....	10 49-100 cents per yard
809,847 Excavation .....	10 38-100 " "
24,588 Loose rock excavation .....	21 98-100 " "
9,004 Excavation in foundations .....	20 73-100 " "
47,409 Ballast .....	18 94-100 " "
Perches.	
15,684 Wet masonry. \$3 88 12-100 " per perch.	
7,280 Dry " " 1 38 73-100 " "	
7,724 " Rip Rap " " 38 68-100 " "	

Respectfully submitted,

W. H. CLEMENT,  
Superintendent and Engineer.

#### (Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

	Jan. 4, 1845.	Jan. 6, 1846.	Jan. 7, 1847.
Travel .....	\$1,502 76	\$1,736 91	\$2,538 75
Freight on goods. 1,263 27		2,032 41	2,521 05
" coal... 5,056 78		9,471 95	22,937 51
	\$7,822 81	\$13,221 57	\$27,997 31
Coal trans.—tons. 3,959		2,254	15,377

#### Miscellaneous Items.

A very extraordinary event has just taken place in the works connected with the Scottish Central railway. It was necessary to erect an embankment fifty feet high in a field near Allan bridge, where the railway was to pass. The work was accordingly commenced, and many thousand loads of earth were piled in the requisite place; the work was then left for the purpose of acquiring solidity, but upon visiting it again it was found to have disappeared with the exception of a few feet. On inquiry it was found that the field had originally been a bog, and the weight of the soil necessary to form the embankment had broken through the external solid earth.—*English paper.*

*The Coal Trade.*—The *Miners' Journal*, of Saturday last, published at Pottsville, Pa., says:

"With this week we close the coal trade of this region for the year 1846. In January last, the managers of the railroad company estimated the capacity of the road at 1,250,000 tons for the year—the quantity sent is 1,233,561 11 being only 16,438 09 tons less than the estimate. The estimate would have been exceeded if the trade had not been retarded in July by the passage of the new tariff bill, and the unusual and unexpected freshet which occurred in June.

The quantity sent to market from all the regions in 1846, is in round numbers 2,238,000 tons, against 2,053,633 tons in 1845, being an increase in 1846 of 312,000 tons.

*Erie Railroad Company.*—The *N. Y. Herald* says, that, on reference to the quotations of the old stock of the Erie Railroad Company, that there has been within the past week or two an advance of fourteen per cent. in the market value. This has been caused by the announcement that the board of directors had determined to pay interest on this stock, as soon as the road was completed to Binghamton. According to the existing appearance of the work on the road, it will be finished to that point in about two years. The directors do not say whether the payment of interest at that time will depend upon the income of the road, or whether it will be paid out of the new capital of the company, but we are informed that the intention is to pay the interest at any rate, whether there are any surplus receipts or not. When this road is completed to Binghamton, the three millions of dollars subscribed under the new charter, will be expended in interest and in constructing the road; the interest on which, at the rate of six per cent. per annum, will have to be paid, making an expenditure under this head of one hundred and eighty thousand dollars per annum. The par value of the old stock in the market is seven hundred and fifty thousand dollars, and the amount of bonds outstanding, about five hundred thousand more, making an aggregate of twelve hundred and fifty thousand dollars, the interest on which at six per cent. would be seventy-five thousand dollars per annum, making, with the interest on the \$3,000,000, an aggregate for interest alone of \$255,000 per annum.

*A Great Printing Machine.*—The *Brooklyn Eagle*, says, "the Messrs. Dryden, the celebrated English engineers, are employed in the construction of a printing machine for the *London Times*, to produce 12,000 impressions per hour, or the inconceivable number of upwards of three sheets per second!" and the *New York Sun* thinks that a machine will be produced in that city, capable of printing between fifteen and twenty thousand copies an hour. So do not we, notwithstanding the *Sun* says, that "good mechanics think it can be done." We do not believe it possible, because the sheets have to be separated and laid on the machine

singly by human hands—at least we have seen no machine where this labor has been otherwise performed—and we consider it utterly impossible that any man, whatever may be his dexterity, can separate and place on the machine three or four sheets per second. Nor do we think it likely that this duty will ever be discharged by mechanism. It has been tried by the most ingenious machinists in New York, but failed, because the operation requires mind.

*Improvements at Worcester.*—At a town meeting in Worcester, on Saturday, it was voted to allow the Boston and Worcester Railroad Corporation to close part of a street, in order to effect certain improvements, which are mentioned in the following, from the *Worcester Palladium*:—

"It is understood that all the railroad companies, now chartered here, will enter into the arrangement proposed by the Boston and Worcester Company; and that if they do so, that company will then go forward and make the proposed heavy expenditures; hold the property involved; and lease out depot accommodations to the other companies. The plan for the depot contemplates the erection of a substantial fire-proof building, 600 feet in length, and a part 80 feet, and other parts 100 feet in width; built upon a segment of a circle; with ample accommodations for the three roads now in operation, and the two others in progress; and admitting of an easy and ready passage of cars from any one to any other of the five. The great convenience of such an arrangement, for the public accommodation, cannot be over-estimated. Another part of the plan contemplates the concentration of the freight houses of all the roads near Washington Square, which, it is believed, will tend largely to a liberal growth of the town in that direction.

*Express Train to Utica.*—A *Rochester paper* says, "that the Utica and Schenectady Company intend in the spring to commence running an express train to Utica without stopping. If the rest of the companies come into this arrangement, Rochester will be reached in eight or ten hours, and Buffalo in twelve. The through mails can be sent by this train, and the business public will be greatly accommodated. The Tonawanda has already agreed to come into the arrangement; and it remains to be seen whether the rest of the roads will do likewise. The two central roads will endeavor to excuse themselves on the ground that their structures are too frail to allow a train to pass over at so rapid a rate. This may be the case; but they must re-construct their roads in a manner to meet the wants of the public, or witness a constant depreciation of their stocks, by the agitation of rival projects. When the southern line is finished, travel will seek that route, rather than run the risk of delays by taking the central line. We hope the arrangement proposed by the Utica road will meet with favor all along the line.

**Commerce of the New York Canals.**—A table of the commerce of the New York Canals for the last two years is published in the Albany Argus, which shows the following comparison:

From and to the Hudson River during the year 1845 and 1846, and the aggregate value of the property transported.

1845.	1846.
Tonnage, 1,428,956 tons.	1,601,335 tons.
Value, \$100,906,319	\$115,732,780

It will be seen that there is an increase in the tonnage of 172,579 tons, and of \$14,826,461 in the value of the property transported, and the excess both in tonnage and value over previous years is still greater.

The value of the entire movement of property from and to the Hudson, says the Argus, is greater by \$4,490,353 than the exports of the United States for the fiscal year ending July, 1844, and greater by \$7,297,845 than the value of the goods imported into the U. States for the same time.

**A Railroad from the Lakes to the Mississippi River.**—The citizens of Milwaukee are about to organize a Company to make a railroad from Milwaukee to the Mississippi. The country over which the road is to pass is said to be very favorable for the construction of a road, having but slight elevations, and but few rivers to cross. It would pass through a section of country illimitable in its agricultural resources, and which is now nearly worthless, for the want of a market for its products.

**Iron in Tennessee.**—The first iron manufactured in Tennessee, has been made at the Tennessee Valley Works, about fifty miles from the mouth of the Cumberland. The articles have been pronounced by competent judges, to be of very superior quality. These works have been built upon an enlarged scale, combining all the advantages such establishments can possess.

**Mining in New Jersey.**—Glowing statements of the copper mines at Flemington, New Jersey, have been recently given:

"From all that we can learn, the copper mines of Flemington, in Hunterdon County, are certain to be mines of wealth to the possessor. We understand that over twenty tons of the richest ore have been mined within the last three days. A specimen of the ore has been sent us by Mr. Whitaker, of this city, who received it from Gen. Hunt, one of the leading capitalists in this Company. It contains 50 per cent. of copper, is worth \$150 per ton at the mines. Mr. Whitaker tells us that the mining is done by contract at the rate of \$3 per ton. Besides this richest quality of ore, there is a kind which has a large admixture of rock and which affords only 20 per cent. of pure copper. Large quantities of this quality are also mined, and the prospects of the Company are certainly flattering in the extreme."—*Trenton News.*

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2 [14] 68 Broad St., New York.

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10c39

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
79 Water St., New York

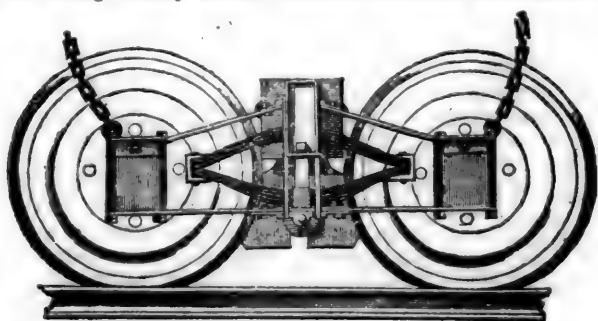
**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring M.I. and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Serew Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,  
Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,  
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.  
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, [Signed,] JOHN LEACH,  
Jamaica November 12, 1845. } 1y19 Sup't Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 11

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinkley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.

ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

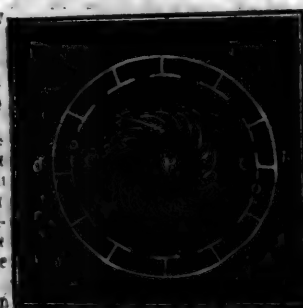
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.



**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

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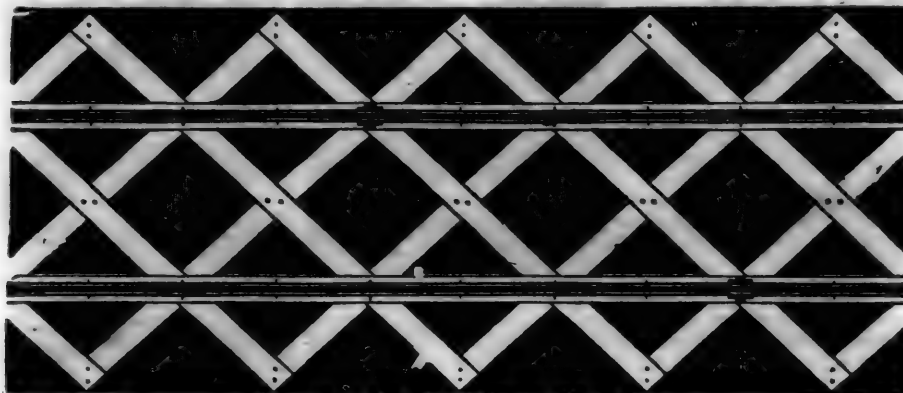
**DAVENPORT & BRIDGES CONTINUE** to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

1y1



## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 34
13,000 Spikes = 2,250 lbs. at 4½ cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

# ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y34

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
ly10 near Third,  
below Walnut,  
Philadelphia.

## LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

29 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

ly48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

461f

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,  
AND MINES.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 3)

SATURDAY, JANUARY 16, 1847.

[WHOLE No. 552, VOL. XX.]

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.

## BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½ and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Sup't.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2½. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.

Sandusky, Ohio. M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 u

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing

Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 5½

J. W. STOWELL, Sup't.



**TROY RAILROADS.—IMPORTANT NOTICE.**—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a.m. and 4½ p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

#### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

#### TROY AND SARATOGA RAILROAD.

##### THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

#### BALTIMORE AND OHIO RAILROAD.

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$13. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 a night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the line North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. (s13y)

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y 10

New York.

#### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

TIME. From Buffalo to Sandusky 24 hours. Leave Sandusky 5 a.m. to Columbus 14 " From Columbus to Cincinnati 15 " Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE. From Buffalo to Sandusky, Cabin \$6 00 " " " Steerage 3 00 " Sandusky to Columbus 4 50 " " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Supt., etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

#### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

##### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 50, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

##### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 45 p.m. 1y 49

#### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at 9 a.m. and 3½ p.m. Arrives at 9 a.m. and 6½ p.m. Leaves York at 5 a.m. and 3 p.m. Arrives at 12½ p.m. and 8 p.m. Leaves York for Columbia at 1½ p.m. and 8 a.m. Leaves Columbia for York at 8 a.m. and 2 p.m.

##### FARE.

Fare to York \$1 50 " Wrightsville 2 00 " Columbia 2 12½

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9 Or via Lancaster by railroad 10 Through tickets to Harrisburg or Gettysburg 3 In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at 5½ p.m. Returning, leaves Owning's Mills at 7 a.m.

D. C. H. BORDLEY, Supt.

31 1y Ticket Office, 63 North st.

#### LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 36 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

#### SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama. Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum 29 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. 1y 25 JOHN KING, Jr, Agent.

#### CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—

On weight goods generally 50 cts. per hundred.

On measurement goods 13 cts. per cubic ft.

On brls. wet (except molasses and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.

On hhd's. and pipes of liquor, not over 130 gallons \$5 00 per hhd.

On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y 40 Gen'l. Supt. Transportation.

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2y 19 1y



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles.  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta	To Oothcaloga
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs. 35
Crockery, per cubic foot.....	0 15	" 35
Molasses and Oil, per bhd., (smaller casks in proportion).....	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.  
Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846.

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 00

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOKTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street, Philadelphia, Pa.

1y35

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

## RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 388 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846.

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
E. cor. 12th and Market sts., Philad., Pa.

445

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company, will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
W. H. CLEMENT, Sup't.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
Engineer and General Superintendent.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 63,197 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 30 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch. With Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse E. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**PATENT INDESTRUCTIBLE WATER**  
Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28d J. BALL & CO.

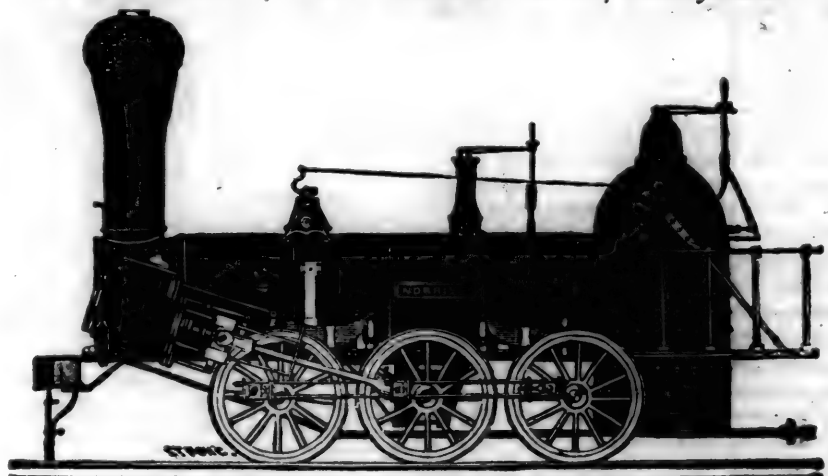
**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS.**

Warehouse E. E. corner 3d and Walnut Sts., Philadelphia.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	×	24	"
"	3,	14½	"	"	×	20	"
"	4,	12½	"	"	×	20	"
"	5,	11½	"	"	×	20	"
"	6,	10½	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**THE NEWCASTLE MANUFACTURING**  
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE**

Tyres imported to order and constantly on hand

by A. & G. RALSTON

4 South Front St., Philadelphia.

**KEARNEY FIRE BRICK. F. W. BRINLEY,** Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.



From the United States Gazette.  
The Central Railroad.

THOMAS P. COPE, ESQ.—Sir: The project of connecting the city of Philadelphia with her sister city of Pittsburg by railroad, being one of vast importance and of engrossing interest at this time, it becomes the duty of every one feeling an interest in the welfare of Philadelphia, to contribute all in his power to give confidence and success to the movement. The project of a subscription of \$2,500,000 on the part of the city, has been productive of various conflicting views, of which the public prints have been the constant vehicles for some time past.

Many—and these I think compose the greatest number of persons opposed to a subscription on the part of the city—are appalled at the magnitude of the undertaking, and the supposed enormous expense involved in its completion; whence arises the conviction, or at least the apprehension, that the work will never pay. That while the burden of expense will be borne by the city, its advantages will be general—the districts for instance, participating equally in them.

The Councils may reasonably be supposed to hesitate between their duty to promote the "trade and welfare" of the city, and a just regard for the number and respectability of those who hold these opinions. This being also the view, doubtless, of many capitalists and moneyed men, having reference to a supposed cost of from \$8,000,000 to \$10,000,000, a consequent apathy may be expected in coming forward to subscribe for the stock, especially if the number of those—and we know they will be numerous—who come forward through patriotic motives, should be unequal to the task.

We know there is abundant capital in Philadelphia; and if it can be shown that it will be a paying concern, patriotism will at once be stimulated in others, a great number of those who oppose the city subscription, would doubtless become reconciled to the measure, and complete and speedy success would crown the enterprise. If it can be made to appear, with a reasonable degree of certainty, that a railroad may be constructed from Harrisburg to Pittsburg for \$4,500,000, capable of accommodating all the business that may offer, with certainty and despatch, then it will require no farther proof that it will pay.

This is to be done by making available at a certain extent the works already forming the line of communication on that route. It is to this subject I would call your attention in this communication. It is a matter that has engaged my thoughts for some time.—While the subject was pending before the Legislature, and while legislative action might have been had in the matter, I prepared an article on the subject of making the present works available for the proposed railroad; but was deterred from submitting it to the public eye, lest to some the project might appear chimerical. But as farther reflection has but strengthened me in my convictions of its utility, I have ventured to call attention to the matter.

Of course the materials are not sufficient for an elaborate investigation of the plan.—Nothing but a careful investigation of all the circumstances based upon instrumental examinations of that portion of the public works proposed to be so used, can develop those.—But meagre as are the materials, I think it will not be difficult at least, to show that the matter is worthy of serious attention. The example of a railroad laid upon the banks of a canal is not wanting. We see an instance of it upon one of the banks of the Delaware and Raritan canal, which is occupied for some miles by the railroad line from Philadelphia to New York, via New Brunswick.

The distance from Harrisburg to Hollidaysburg by the line of the canal, is 145 miles, and the lockage or rise in that distance is about 620 feet—by other authorities less. This divided by the number of miles, gives not quite four and a half feet per mile, average. But the rise is more rapid as the canal approaches its termination at Hollidaysburg, being something like 450 feet in the last 38 miles which however is less than twelve feet per mile, average. I have made no allowance for any reduction of distance from that by the present line of improvements, by occasional deviations from the canal, where much saving could be effected in that particular, on which account I might fairly have deducted several miles. All who have travelled by the canal will have in recollection a point on the Eastern Division, where a walk of three-fourths of a mile over a ridge or spur, cuts off a detour by the canal of three miles—but this is a single instance.

A part of this plan is to lay down the railroad upon or the other bank of the canal, as circumstances at different points might make most desirable. It would be necessary to increase the towing path from ten feet, its present width, to that say of fifteen—for single track, which is, I believe, all that is contemplated at present. Culverts, etc., would require to be lengthened to correspond—that is, five feet.

Now let me endeavor to show the difference in cost between this plan and an independent line in the items of grading, culverts, drains, and the like. Take a single instance. An embankment 30 feet in height, 15 feet in width on top, and having the usual slopes of one and a half feet horizontal to one perpendicular, would be 105 feet at bottom, 15 feet at top—in place of an increased width of but five feet throughout; involving, as a few figures would show, but one-twelfth the labor and expense. The same applies to excavations. To adapt a culvert under such circumstances to the increased width, would cost but one-twentieth, there being but five feet in length to construct instead of, say, 100. A person not familiar with the subject, might at the first blush of the matter, conclude that the additional cost would be exactly in proportion to the increased width.

It is true, that I have perhaps, assumed an extreme case—but one that would frequently occur however—for the discrepancy would not be so great between the increased width and cost, if the excavation or embankment

was but five feet. But we see at least, that so to enlarge the cuttings and embankments of the canal, as to obtain a roadway of 15 feet, could never cost more than one-third of what would be the expenditure to obtain the same dimensions in a separate work; for where the cuttings and embankments were but one foot, this would be nearly the case—and varying from that to one-twelfth, as I have shown where the cuttings and embankments are thirty feet. An allowance for constructing the horse path, where occupied by the railroad, will be hereafter spoken of.

But let us proceed cautiously. We will therefore assume that the grading would cost one-third of what would be the expense of an independent line, including viaducts, culverts, etc., under the head of grading. This ration of expense is particularly applicable, it is believed, to adapting the aqueducts (of which there are 49 upon the two divisions of the canal) to the double purpose; especially as it is possible that the railroad might be passed upon a second story, as is the case with the railroad over the Raritan at New Brunswick. We will put the cost of an independent line at \$30,000 per mile, which is thought to be a fair estimate, for all but the Allegheny Division, where this plan proposes the use of the Portage railroad. It is about the average cost of well constructed railroads in this country, including equipments. If of this sum we set aside \$3000 per mile for the equipments, such as cars, locomotives, depots, water stations, etc., we have \$27,000 per mile for the construction of the road proper. We will set aside \$8000 of this for the superstructure—single track—which will equip the road with a T rail weighing 56 pounds per yard, we have \$19,000 per mile left for grading. Now if we assume that a road bed may be graded and prepared along the banks of canal for one-third of the cost of an independent line, as I have endeavored to show we may, then we require for this purpose \$6333 per mile. Add to this \$8000 per mile for superstructure, and \$3000 per mile for equipments, and we have \$17,333 per mile, total expense. The distance from Harrisburg to Hollidaysburg being 145 miles, we have as total cost of this link in the chain, £2513,295.

In these estimates I have taken no notice of the fact, and a very important one it is, that the land damages or "right of way" amounting in England—I state it as a curious fact—to \$20,000 per mile, or equal to the entire cost of many of our railroads, would cost a mere trifle; as the line of railroad might, I doubt not, be almost entirely laid within the limits to which the titles have been extinguished by the state, for the purposes of the canal. Under other circumstances, this item, including fencing, could not be put at less than \$1500 per mile. Neither have I taken any notice of the fact that there would be little or no clearing and grubbing, usually amounting from \$300 to \$500 per mile.

I might also urge the facilities which the canal would afford in the construction of the railroad.

I will offset these against the construction



of the horse or towing path, at such points as would require it. On embankments this would be unnecessary, as it is already provided in the "heel path."

I do not know whether the same plan is applicable to the western division of the canal, extending from Johnstown to Pittsburg, since it would appear, that by deviating considerably from the line of the canal the distance may be very much curtailed. However, I shall assume for the present purpose that it is, and will endeavor to show at all events, that by adhering to it, a railroad communication may be had with Pittsburg at a very small cost—making the Portage railroad also a link in the chain, as before mentioned.—From Johnstown to Pittsburg the distance by the canal is 104 miles, and the lockage, or descent, 471 feet, or four and one-half feet per mile average, the descent of course being more rapid near Johnstown, but still such as to admit of extremely easy grades.

And here I will take occasion to say in regard to both divisions of the canal, that the lockages usually occur singly—the locks being seldom nearer each other than from a third to a half a mile. If we assume a maximum grade of 45 feet per mile, and put down the average rise at each lock at eight feet, then we would require a plane of but one-sixth of a mile at each lock to overcome the ascent; and the balance would be upon the present level grade on the towing path. And as 14 miles at 45 feet per mile, will overcome the whole ascent between Harrisburg and Hollidaysburg, and as 11 miles at 45 feet per mile will overcome the whole ascent from Pittsburg to Johnstown, it follows, that with the exception of these 25 miles, the whole remainder, consisting of 224 miles, might be upon a dead level. This is an answer to any objections, that might arise to the short curvatures occasionally occurring on the canal, as they could be made to fall upon level grades. Besides, the Columbia railroad presents instances of as sharp curves as occur upon the canal, if I mistake not, viz: a radius, of 350 feet. There are curves of 822 feet radius, which occupy 12 miles in length of that work.

The distance from Johnstown to Pittsburg being 104 miles, as before stated, at \$17,338 per mile, gives us the sum of \$1,802,632, which add to \$2,513,295, and we have \$4,315,927, as the cost of the whole improvement, including cars, locomotives, depots, etc. provided we make use of the Portage railroad, at least for some years. Now let us see why this may not be done.

The Portage railroad is 37 miles in length. The rise from Hollidaysburg to the summit, is 1398 feet, distance 10 miles; and the descent from the summit to Johnstown, is 1171 feet, distance 27 miles. This trip is performed in about four hours, or at the average speed of about nine miles per hour, which is six miles less per hour than the ordinary speed of passenger trains upon the railroads of this country. Now it might well be questioned, whether, if the 2569 feet of rise and fall between Hollidaysburg and Johnstown, could be spread out so as to occupy 39 miles,

at 66 feet per mile—being the grade which the Baltimore and Ohio railroad will have for about that number of miles, if ever completed to the Ohio, as I understand—this would not offer almost as great an obstacle, especially to its freighting business, as in its present shape; when we take into account that as an equivalent for this, we have light grades for the remainder of the distance, and even 224 miles of perfect level.

Now let us look at the amount of business which the Portage railroad can accommodate. Not having by me any information of a late date, I am compelled to consult a report made in 1838, in which this matter is alluded to. It is to be presumed that its capabilities have not diminished since that period—on the contrary we know, that within the last few years, great improvements have been made in the working of inclined planes, both as regards its speed and safety. In this report it is stated, that four cars carrying two and a half tons each, may ascend together; that an equal number may be let down at the same time, and that from six to ten of these trips may be made per hour. Four cars each way, with two and a half tons each, gives 20 tons per trip. Now assuming the smallest number of trips per hour, viz: six, we have 120 tons as the business which may pass a given point in one hour; and 1440 as a day's work, or 864,000 tons, working the road day and night.

Since writing the above, the report of the Canal Commissioners for 1836 has met my eye, from which I extract the following, by which it will be seen that I have underrated, rather than overrated, the capacity of the Portage railroad.

"The Portage railway, however complicated in its operations, is, nevertheless, adequate to the transaction of a vast amount of business. Occupying as it does, nearly a central position on the main line between Columbia and Pittsburg, the capacity of the planes ought to be equal to that of the canal locks, the latter, we know, have never had a demand upon them equal to one-fifth of their capacity on those divisions. Many suppose the planes fall very far short of that limit, and that their full capacity is nearly reached.

"It is however due to our commercial interests and the public at large to state, that the maximum of that limit is very far from being attained. The length of the longest plane is about 3000 feet; the time occupied in moving up or down it, is five minutes, the time occupied in attaching is two and a half minutes, making seven and a half minutes, or eight drafts per hour of three loaded cars, carrying three tons each, making 24 cars, or 72 tons per hour each way," which is equal to 518,400 tons per annum.

"It will be observed by the report of the Superintendent, that the number of cars weighed at Hollidaysburg, and transported from east to west, from April 1st, to October 31st, is 14,800, making a transit of a number not exceeding a hundred per day, but when the business requires it, instead of this number 24 cars can be passed up and the same number down the longest plane in each hour,

making 288 cars in the day of 12 hours, or 576 in one direction in 24 hours; this can be accomplished by using the road day and night, by means of a double set of hands.—This is the true limit of the capacity of the road," viz: 1,036,800 per annum, which approaches the immense tonnage of the Reading railroad.

If we compare this capacity for business with the amount done on the principal freighting railroads of the country, how far it outstrips them. Take the Western railroad, between Boston and Albany, for instance, which in 1844 transported 71,000 tons.

Under these circumstances, why should not the Portage become a link in the chain? Since we find that it can do all that is required of it, and save a heavy outlay that might jeopard the undertaking. Should the project of using the canal banks not meet with the favor I anticipate for it, from any cause, I am confident I shall not be disappointed as to the approbation this part of the plan will meet with, under the state of facts I have shown to exist. It is this portion of the improvement—the passage of the Allegheny mountain, that "so affrights men's souls."—Let it be known that the Portage railroad can be safely made available for this purpose, and much of the difficulty vanishes.

It is not to be presumed there would be any difficulty in effecting the amendments in the charter which this plan, or any portion of it, might make necessary; when we consider the revenue that would flow into the treasury, by its adoption. Indeed, if the route by the Juniata should be adopted, it may be worth considering, whether that instrument will not require some amendment, at all events—as the railroad will doubtless require to cross and re-cross the canal frequently, and often run parallel and near to it—to prevent collision between the two interests; which may happen if the rights of both are not clearly pointed out and defined.

As to the expense of working and maintaining the Portage railroad, it appears from the report of the Canal Commissioners, that for the year ending December 1st, 1844, the motive power, trucks, and maintenance of way of the Portage railroad, cost \$135,000; and that the same distance on the Columbia road cost for the same purposes, \$90,187, or but about one-third less.

The following additional statistics of the Portage railroad may be interesting.

The Portage railroad cost about \$2,000,000, or \$54,000 per mile; from this may be inferred the cost of constructing a railroad through this region with easy grades, and without the facility of adapting itself, like that work, to the inequalities of the ground. There are upon the line four viaducts, one of which is 70 feet high, and cost \$54,000; one tunnel 900 feet long, 69 culverts, and 85 drains.—There are 10 planes, five on each side of the summit, with two stationary engines at each; but one however is used at a time, the other being kept as a relay. The height of the summit above the ocean is 2491 feet.

I will close this communication with the following deduction (in part) from the pre-

mises I have taken. If we call the investment in round numbers \$4,500,000; and if we assume a number equal to 150,000 through passengers, at \$4; and 150,000 tons of freight at \$6, to say nothing of mail service, etc., we have the following items:

150,000 passengers, at \$4.....	\$600,000
150,000 tons freight, at \$6.....	900,000

Total.....	1,500,000
Deduct as the State's pro rata.....	300,000

Balance.....	1,200,000
Deduct 50 per cent. for expenses.....	600,000

Total net.....	\$600,000
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Which is equal to over 13 per cent. on the capital.

The following, which has just come under my notice, as it appears pertinent to the subject, I append. It may be well to add, that the work spoken of is now progressing. "I will also remark that the idea of so appropriating the banks of the canal, was suggested by your correspondent in an article published in the Railroad Journal five years since, with details of the plan and estimates; but the limited means of the company prevented its adoption at that time."

"The New Haven and Northampton canal company have had it in contemplation for some time, and are now concerting measures for an increase of capital to enable them to lay down a railroad on their towing path from New Haven to Westfield and Northampton, 80 miles, and thus bring the travel and transportation of the populous and thriving valley of the Connecticut to New York, by way of New Haven, using both the canal and railroad. The whole length being already graded with the exception of some slight additions about the locks, with the advantage of a canal to transport all the materials for the superstructure, it has been ascertained that the whole can be done with the heaviest T rail for about \$7000 per mile—say \$560,000 for 80 miles! Then it will be tested which road can best afford to carry for low fare, the one that costs only \$560,000, or the one that has cost, or will cost, when completed, one or two millions of dollars! Many persons now express their surprise that the canal company, or the New Haven people, did not sooner avail themselves of the already graded banks of the canal for this purpose."

I am, with great respect, your obedient servant,  
FRANKLIN P. HOLCOMB.

#### New York and Erie Railroad.

We have received the following call upon, and statement to, the shareholders of this road. In giving place to this communication, we cannot refrain from the free expression of our opinion of the efforts and deserts of the directors and officers of this company. Coming into this place, and the management of its affairs, as they did, when its sun of prosperity was under an almost total eclipse, and bringing it, as they have, into a state of prosperity and active progression, they merit—and if the people of New York, and the Southern tier of counties, and the West can appreciate a generous devotion to the public interest—they will receive rich rewards in a just estimation of their labors.

It is no new thing for us to say that, to the city of New York, it would be true economy—could it not

be otherwise built—to build it by a tax upon the property of the city—rather than not to have it done; but, by the energy and perseverance of those who have had its direction during the two past years, doubts have been dispelled, and renewed confidence inspired in the minds of those who are to be benefited by its early completion; and we desire again to bear our testimony warmly in favor of, and to cheer on, those who deserve so much from their fellow citizens. The call referred to is as follows, and we trust it will meet with a prompt response from all to whom it is addressed.

*"The Stockholders of the New York and Erie Railroad Company are hereby notified that an instalment of ten dollars per share on all shares on which the payments already made do not exceed twenty-five dollars, is required to be paid at the office of the company, No. 45 Wall street, on or before the 12th day of January, 1847.*

*By order of the Board of Directors.*

*NATHANIEL MARSH, Secretary.*

*"N. B.—Subscribers at or near Newburgh, are requested to make payments to Thomas C. Ring, Esq., Cashier of the Powell Bank.*

"The above is a copy of a call for a further instalment of ten per cent. And in making this call, the Board of Directors have considered it due to the Stockholders that they should be kept fully advised of the condition and prospects of the Company, and to that end submit the following:—

"All the preceding calls made by the Directors have been very generally responded to by the subscribers, and 25 per cent has been paid on an amount beyond 3,000,000 dollars; a considerable number have paid a much larger per centage in advance, and many have paid up in full.—

"The interest on the instalments, and on all other indebtedness of the Company, has been paid semi-annually, agreeably to the terms of subscription; and in accordance with the views set forth in the address of the Directors, at the time of opening the Books for subscription on the 1st September, 1845, it has been paid out of the net earnings of the road, leaving a surplus to carry to next year's interest account.

"From 9 to 10 miles of as heavy and expensive a portion of the work as any of like distance to Lake Erie, (viz: from Middletown to Otisville,) was added to the main line in the month of October last. The grading from that point to Binghamton, a distance of over 140 miles, has been put under contract on very favorable terms, and much below the Engineer's estimate, and will be finished during the ensuing year. The contractors are now at work on the heaviest and most difficult parts of the line, both in our own State and in Pennsylvania, and the whole work will be urged forward as rapidly as a proper regard to economy and prudence will permit; the Directors hoping to be able to extend the road to Hornellsville, nearly simultaneously with its completion to Binghamton, or at the farthest, by the 1st January, 1849—or within two years from date.

"A contract for all the iron rails required for the whole distance to the place last named, has also been made on very advantageous terms.

"The Stockholders having been heretofore informed of the reasons which have delayed a more rapid prosecution of the work, it may suffice at this time to state that the whole line from Otisville to Binghamton, a distance of 140 miles, was for a long time under the control of the Commissioners, until by their recent decision in favor of the best route to Lake Erie, they have settled a very important question which has embarrassed the company for years.

"By this decision a most favorable line has been obtained, in addition to which the Directors have determined to alter and improve the grade beyond Binghamton, at the few points where it is required, which is considered by the Engineers perfectly practicable, and at very little expense; when the grade or line will stand thus:—From Dunkirk on Lake Erie, coming east towards the Hudson River, for the first 14 miles, the maximum grade will not exceed 60 feet to the mile;—from that point to Hornellsville, a distance of 114 miles, the grade will not exceed 30 feet to the mile;—from Hornellsville to Port Jervis, 250 miles, the whole distance is level, descending, or not exceeding five feet to the mile, except at one point, where an ascending grade of 60 feet to the mile is met with for a distance of 8 miles, being the high land between the Susquehanna and Delaware Rivers; at which point a heavy train of cars would require an extra or assisting engine, with which assistance a continuous line of 250 miles would be rendered practically level. From Port Jervis, ascending the Shawangunk mountain to Otisville, a distance of 11 miles, the grade is but 45 feet to the mile. With the road now in use from Otisville, (the present terminus) to Piermont, a distance of 62 miles, the Stockholders are doubtless generally familiar.

"Thus it will be seen that a better grade has been obtained for this great work than its most sanguine friends ever anticipated, the value and importance of which to this city and the southwestern counties of our State, can hardly be estimated, and can only be measured by millions of dollars, when the business of a series of years is taken into account.

"It is further believed that if anything can compensate the people of the Southwestern counties, and those also of our own city, for the great injury they have sustained by the long delay in the construction of this important work, it will be found in the improved character of the line above referred to.

"At the time of opening the Books for subscription, the Directors deemed it expedient, if not absolutely necessary to success, that interest should be paid on the new subscriptions, believing that the net earnings of the road would provide for such payment, leaving the subject of paying interest on the old stock an open question. Since which time unceasing complaints have been made,



and much dissatisfaction expressed at the Directors declining to pay interest on the old stock. The consideration of the question having been postponed as long as a proper and prudent regard for the true interests of the company would permit, the subject was recently taken up by the Board, and after a very full and careful examination, it was determined to pay interest on the old stock from the date of completion of the road to Banghamton, and upon the same principle, that it was determined to pay interest on the new subscriptions, viz: out of the net earnings of the road, believing that when the road shall be extended to that point, that the net earnings will provide for the interest on both classes of stock; in which case they consider they would have no right to withhold it. If the limits assigned to this circular would allow a full statement of all the reasons which influenced the Board in such determination, it is believed their decision would meet the approbation of every Stockholder in the Company.

"The earnings of the road are steadily and permanently increasing, and every additional portion added to the main line, lessens the active competition between it and the Hudson river, from which, as it will be seen by reference to the map, it very gradually diverges from its commencement at Piermont to Middletown; but from which latter point westward, there will be little or no competition for the trade of the South-western Counties of our own State, and also that of all the Northern tier of Counties of Pennsylvania, extending on a line parallel with the road, a distance of nearly 400 miles, and which, by their position, will necessarily be dependent on this road for a communication with this city, and without taking into account the business of the rapidly extending West, with its great inland seas, it is difficult to conceive with an outspread map before us, of any portion of our country through which a railroad could be constructed which would draw to it the trade of such an extensive and valuable portion of the country, and so abundant in resources and substantial wealth.

"It may not be improper here to add, that from the time the present Board of Directors assumed the control of this work, they have disincumbered it of a vast amount of difficulties and embarrassments, and placed it in a condition to deserve, as they believe, the entire confidence of the Stockholders and the public; and when it is further considered (and it will bear repetition), that in addition to the great natural advantages of this work, is added the release of the State lien of \$3,000,000, and the reduction of the old stock to half its par value, thus forming a bonus of more than thirty per cent. on all the stock of the Company, it is doubtless safe to state that no railroad stock of our country ever presented, or will be likely hereafter to present, greater inducements for a safe and permanent investment.

"By order of the Board of Directors.

NATHANIEL MARSH,  
Secretary."

New York, January, 1847.

#### The Railroad Interest in Maine.

The accounts from the state of Maine, give evidence of a lively interest being exhibited in that quarter, in regard to railroads. The citizens of Bath, Augusta, Gardiner, Hallowell, etc., are up and doing—and the prospect is, that important results will be accomplished—if the spirit shown at the late public meetings, can be taken as an earnest of the disposition of the people there. We learn from the "Yankee Blade," that a great mass meeting of the citizens of Hallowell, Augusta and Gardiner, was held at the town hall in the first named town, on Saturday last, for the purpose of taking more active and energetic measures in regard to the Portland and Kennebec railroad. The people turned out in great numbers; both in the forenoon and afternoon, and eloquent and enthusiastic speeches were delivered, which were listened to with the deepest interest. Among those who addressed the meeting were Rev. J. W. Bardbury, Hon. Renel Williams, Hon. David Bronson, and Rev. W. A. Drew, of Augusta, Hon. John Otis, of Hallowell, and R. H. Gardiner, and Park Sheldon, Esq., of Gardiner. A degree of zeal, spirit, unanimity and enthusiasm was exhibited, such as has never before been witnessed among us, and on all hands there was felt to be an absolute necessity of adopting the most vigorous measures, and that—*immediately!*—Mr. Otis, "one of the directors of the railroad, reported that the aggregate subscriptions for the road, now on the books, amounted to \$478,000—and that, in all probability, the amount would soon be raised to \$800,000. The following strong resolutions were passed. It will be seen by the last particularly that the people are wide awake for the enterprise, and are determined that its prosecution shall lag no longer.

This is managing matters in the right spirit. A series of resolution were proposed and adopted—from which we cull the following as specimens:—

*Resolved*, That the time has arrived when the public interest demands the opening of a grand channel of railroad communication, connecting the valleys of the Kennebec and the Penobscot with Portland and Boston; and that it is the sense of this meeting that such road should pass through Brunswick, Gardiner, Hallowell, and Augusta, to such point on the Kennebec river, in Waterville or Fairfield, as shall best secure the public accommodation, and the facilities of crossing the Kennebec in its extension to Bangor.

*Resolved*, That we regard this road as the commencement of a system of railroads, running far up the valley of the Kennebec, and connecting with Bangor, branching off at various points, so as to accommodate every part of the interiors of the counties of Kennebec, Franklin, Somerset and Penobscot, developing the resources, and increasing the wealth of the country through which it shall pass.

*Resolved*, That the subscriptions already obtained to the Kennebec and Portland railroad, together with the sums pledged to be taken and in a short time to be realized, do, in the opinion of this meeting, fully authorize the directors to take immediate steps to put the whole line under contract to Augusta, with the branch to Bath.

*Resolved*, That the towns of Augusta, Hallowell, Gardiner, Bath, and Brunswick, have the ability to invest at least \$800,000 in the road, and that the interests of those towns imperiously demand that it be done.

Railroad meetings appear to be the order of the day in every direction, in that region, and the disposition appears to be to push matters on with vigor. The Skowhegan Press says that subscription papers are in circulation, for subscribers to the stock in the Waterville and Lewiston road, and something like \$5000 have been taken by individuals in the two villages of Skowhegan and Bloomfield.

The residents along the proposed routes from Portland, eastward, are actively engaged in pressing the

subject upon the people generally, and we are happy to see that it has excited a deep interest among all classes there—the merchant, the manufacturer and the farmer, as well as the capitalist.

#### Wolfe Island, Kingston, and Toronto Railroad.

The Kingston (U. C.) Gazette says, "it will be remembered that a few months ago, our talented and respected fellow townsman, Charles Stuart, Esq., proceeded to England on behalf of the acting committee of the Wolfe Island, Kingston, and Toronto railroad company, for the purpose of taking up a portion of the stock in London, and also with a view of urging upon the Government the necessity of giving without loss of time the royal assent to the Provincial Act incorporating the said company. About the 20th of October last, Mr. Stuart had an interview with Lord Grey, the colonial secretary on the subject, when he strongly urged upon him the propriety of the royal assent being given as soon as possible, and though his Lordship then seemed to throw various obstacles in the way, yet it is now gratifying to find by the Official Gazette of Saturday, that our bill with all the others passed last session, have received the royal assent;—we make the following extract from the proclamation in the Gazette:—

Now Know Ye, that the aforesaid Bills, respectively intitled, "An Act to incorporate a Company to extend the Great Western Railroad from Hamilton to Toronto," "An Act to amend an Act passed in the eighth year of Her Majesty's Reign, intituled, An Act to amend an Act passed in the sixth year of the Reign of His late Majesty King William the Fourth, intituled, An Act to incorporate the City of Toronto and Lake Huron Railroad Company," "An Act for erecting a suspension Bridge over the Niagara River at or near the Falls of Niagara," "An Act to restore the rights of certain persons attainted for High Treason," "An Act to incorporate the Wolfe Island, Kingston and Toronto Railroad Company," "An Act to incorporate the Petersboro' and Port Hope Railway Company," "An Act to incorporate the Montreal and Kingston Railroad Company," having been laid before Us in Council, on the Thirtieth day of October, now last past, we have been pleased to assent to each and every of the same; and we do by these presents and according to the provisions of the said Act of Parliament of the United Kingdom of Great Britain and Ireland, passed in the third and fourth years of our reign, assent to each and every of the aforesaid respective bills; of all which our loving subjects, and all others whom these presents may concern, are hereby required to take notice, and to govern themselves accordingly.

#### Northern Railroad.

A section of this important road was opened last week, from Concord to Franklin, N. H. Thence, it is to proceed north westerly to Lebanon, near the mouth of White river in Vermont, where the parties have already agreed that it shall connect with the Vermont Central. At the festival on the opening, Mr. C. T. Russell, one of the Directors, made the following statements on the aspects of the enterprise.

To-day, he said, we had seen 19 of the 68 miles completed. The part completed had cost \$25,000 per mile. Forty-nine miles remained to be done, all of which was under contract, including the bridge over the Connecticut at the mouth of White river. Two-thirds of the grading had been completed, needing only the dressing to be ready for rails. A section of the road immediately beyond Franklin would be opened in the spring. The principal difficulty was the removal of 28,000 cubic yards of rock at Orange, the summit, which would be completed in August, and the whole road would be traversed by cars as early as the first of November next.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, January 16, 1847.

We ask the attention of our readers to the following notice:

#### NOTICE TO RAILROAD CONTRACTORS.

Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.

J. W. BROOKS, Supt. & Eng.

Detroit, January 5, 1847.

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#### Index to the Last Volume.

This useful and necessary appendage to the Journal, for last year, will be ready in a short time and forwarded to each subscriber.

#### Table of American Railroads.

The difficulty of completing this interesting document, has been such as to delay it much longer than we anticipated. It will, however, be completed at the earliest possible period, and forwarded with the Journal.

#### Railroad Iron.

In accordance with our suggestion a short time since, in the Journal, a bar of railroad iron from the new mill of Messrs. Reeve, Buck & Co., Phoenixville, has been deposited at our office, in the FRANKLIN HOUSE, for the inspection of those who are interested in such matters. It is a beautiful sample of the rail, eighteen feet long, weighing sixty pounds to the yard. There is also the fag-end of a bar, broken to show the quality of the iron, which is pronounced, by good judges, a superior article, and we invite all those interested in the construction of railroads, or in the manufacture of iron, to call and look at it.

#### Phoenixville, Pa.

This interesting village is located on the Schuylkill and Reading railroad, about 25 miles from this city. Its importance is chiefly derived from the ironworks of Messrs. Reeve, Buck & Co., and a cotton mill of considerable extent. But that which is most interesting to the visitor is the manufacture of iron, from the raw material, into the various shapes in which it is placed in the market. Here the ore, with the coal and the lime-stone, is placed in the furnace and run into "pigs." Thence it is carried to the puddling furnace, again heated, and after "bringing it to nature," is "balled," squeezed into shape, rolled into bars, cut, piled, re-heated and rolled into railroad bars; or, into merchant bars, or

sheets, from which about 1000 kegs of nails are manufactured and packed every week. The manufacture of rails is, however, the most important, and when we take into consideration the extent of the works, the quantity and expense of the machinery, with the number of workmen, and the skill and labor required, we think the proprietors entitled to much credit for their enterprise and perseverance. In the entire establishment about 500 men are employed, and when we add the colliers, the miners, and the carriers, we think the "industrial classes" will look upon the iron business as one of the important interests of the state.

#### The Prospect.

At the last accounts, there needed the subscription of but a few hundred shares to the capital stock of the Pennsylvania railroad, to obtain the charter. The citizens of Philadelphia have evinced their confidence in this great work, by coming forward and subscribing generously to the stock, and the result will show that the people in this vicinity have not lost sight of the important advantages which attach to this project. We are among those who feel confident that this line of railroad must prove very profitable as an investment—and we cannot but believe that this route will bring to the city of Philadelphia, an immense amount of additional trade from the interior, as well as the west, which is now drawn from it, by other main channels of conveyance from Ohio, etc., to our Atlantic borders. Let the work go on—and let us have a good road, well constructed and well appointed—and but a few years will elapse before the city of Philadelphia will feel the influence of its establishment, as Boston has, since the completion of the Great Western road.

#### Magnetic Telegraph.

This important invention is likely to become a very common means of correspondence and communication all over the country. The board of trade of Montreal have taken the subject in hand, and will petition government to erect one from Montreal to Halifax. Thus giving the first news by the English steamers that touch at that point on their way to Boston. In that case we should get the first intelligence from Europe by way of Canada.

Another line is recommended to Portland, passing along the line of the railroad now building from Montreal to that city. Another line is contemplated from Montreal to New York, intersecting at Saratoga. The line from Toronto to Montreal, passing through Kingston, will also be built. There is already one from Buffalo to Toronto.

The Pittsburg Gazette of the 31st ult., states that the poles of the Pittsburg, Cincinnati, and Louisville line of telegraphs were being put up, commencing at the corner of Fourth and Smithfield streets, and proceeding towards the Monongahela bridge, over which it is to be carried.

The Baltimore Sun states that books are open in that city for the subscription of stock for the telegraph line from Washington City to New Orleans, via Charleston, S. C. The stock in the line from Baltimore to New York, has netted full twelve per cent on the cost of construction, including the stock given to the patentees. This makes the net income on the actual outlay for the road 24 per cent, "despite all the delays and accidents incident to a new invention." It is proposed to finish the line to New Orleans in four months.

The projectors of the Philadelphia and New Orleans magnetic telegraph, have made an estimate of the expenses and the profits of their line. They judge that by constant operation during the 24 hours

each day, it would earn at the rate of two dollars for each fifteen words, superscription, etc., \$1,440, or \$419,280 in a year. The gross expenses are estimated at \$63,000 for the year, and the cost of construction \$300,000.

We saw and conversed with Mr. Eliphalet Case, Jr., a few days ago, who is interested in the line from Pittsburg to Cincinnati. From him we learn that the best prospects promise, in relation to the establishment of the telegraph, upon that line—and we now learn from the Cincinnati Gazette, of a late date, that Mr. C. has returned there, from his visit to the east, and has obtained from the patentees to himself and his associates, a legal transfer of their right to construct a line of telegraph from Cincinnati to Pittsburg, to Lake Erie, to Louisville, to St. Louis, and to New Orleans, via Nashville, and arrangements are making to construct these lines with all despatch. It seems from this conveyance that the proprietors of the patent do not recognize any other authority to construct any of these lines. The business is entrusted to good hands, and Mr. Case's business reputation is ample guaranty that the work will be "put through" with all practicable despatch.

#### Railroad Matters.

The Utica and Schenectady railroad is to be relaid early the ensuing spring, with rails heavier and more substantial than any hitherto used in this country. The grading is now good, the fare has been made reasonable—a little over two cents a mile—and when the new rails are laid, there will be nothing more to be desired. We have a profound conviction, says the Rochester American, that the interests of the several railroad corporations, no less than that of the public, requires such renovation and improvement as are undertaken by the enterprising Utica and Schenectady company. Heavy rails and good grading will ensure cheap fares and large profits.—This is all which can be desired either by the stockholders or the community. The above-mentioned road passes through a valley of extraordinary natural beauty, along which a great current of travel must always go.

The Detroit Free Press states that on the 24th of December, ult., the Michigan Southern railroad company paid to the state treasurer, the second instalment required by their charter for the purchase of the Southern railroad. On the same day the agents of the state started for Monroe for the purpose of transferring the road to the company, and to-day we presume the road will pass from the state and be vested in the company. The amount paid by the company, so far, is \$50,000, leaving \$450,000 to be paid in instalments hereafter. The terms of the sale require the prompt finishing of the road, and the advantages to the fertile portion of the state through which it will pass, must necessarily be very great.

On Tuesday last, the County Commissioners viewed the several highways and town-ways over which the Cape Cod Branch railroad will cross in Sandwich; and the next day, at their meeting in Barnstable, they authorized the corporation to cross said highways and town-ways with the road upon a level. The corporation, however, must construct in the Town Neck lane, a safe passage way, 15 feet wide, and six feet high, under the road, for the cattle to go to Town Neck.

The Baltimore and Ohio railroad company have in use an engine of 25 tons, which, with the aid of a newly constructed snow plough, that is said to have cost only \$50, carries a heavy train up a steep ascent, through snow drifts eight and nine feet deep.

When the line is completed between Berwick and Newcastle, the journey from Edinburgh to London will be a matter of fifteen or sixteen hours. Little more than a century ago, the following notice was given: "9th May, 1734.—A coach will set out from Edinburgh towards the end of next week for London, or any place on the road. To be performed in nine days, being three days sooner than any other coach that travels the road; for which purpose eight stout horses are stationed at proper distances."

The Cincinnati Gazette informs us that the following named gentlemen were, on the 15th December, elected Directors of the Little Miami railroad company for the ensuing year, viz: Jeremiah Morrow, John Kilgour, Jacob Strader, John Kugler, Samuel Barnett, C. Williams, R. R. Springer, G. Taylor, S. Hivling, N. Wright, R. Brachman, W. McCammon. At a subsequent period, the new Board organized by the election of Jeremiah Morrow, President, and Clark Williams, Secretary. At a meeting of the Board held at the office of the company in that city, a dividend of five per cent. was declared out of the profits for the past year, payable in the stock of the company, to all stockholders who had fully paid up their subscriptions previous to the 1st day of July last. On all stock paid up subsequently, a dividend was ordered to be paid pro rata from the first day of each month following the period of such payment.

The people of Bath and the Kennebec towns generally are pushing forward vigorously the project of a railroad from Portland to Augusta, with a branch from Bath to Brunswick. The road is intended ultimately to be extended to Waterville, and from thence to the Penobscot.

An application will be made to the legislature for a charter for a railroad from Lee, Mass., to Housatonicville, to intersect with the Housatonic railroad. We learn from the Pittsfield Sun that a meeting was held at Lee on the 28th ult., at which a report of a survey was made, which represented the route as very feasible. The cost is estimated at \$500,000.

#### Coal Trade--Shipping--and other Items.

The Reading railroad company sent 1,233,561 tons over the road last year, being only 16,438 tons less than the managers estimated the capacity of the road. The quantity sent to market from all the regions in 1846, is in round numbers 2,334,000 tons, against 2,053,633 tons in 1845, being an increase in 1846 of 312,000 tons. This is an immense business, but nothing to compare with what the Reading railroad is destined, ere long, to attain, in the transportation of coal. During the week ending Saturday, 2d inst., says the Cumberland Civilian, nearly 1,000 tons of coal were sent by the Maryland mining company on the Baltimore and Ohio railroad to the eastern markets, notwithstanding the intervention of the holidays.

The Geneva Gazette says that the statement of the business of the collector's office, in this village, as prepared by our attentive collector, Col. Bogert, presents a gratifying account of the trade upon our lake and canal. The amount of tolls received at the office is more than \$8000 greater than that received last year, notwithstanding that there has been a considerable reduction in the rates of tolls on the bulk of the article.

BENJAMIN KINGSBURY, JR., the surveyor of Portland, furnishes a list of the vessels, with their class and tonnage, which have been built and registered in the district of Portland during the year 1846.—The district includes the towns of North Yarmouth, Brunswick, Freeport, Harpswell, and perhaps some

others. The total amount of new vessels is 49, viz: three ships, twenty-two barques, fourteen brigs, eleven schooners and one sloop, the tonnage of which is 10,467—an increase over last year of 2171 tons. Three barques and one schooner were built for Boston, and one barque for New York.

The proposition to establish a line of steam packets between Richmond, Va., and New York, has been revived, and a petition presented to the Legislature of Virginia, to incorporate a company for this purpose.

The New York Tribune states that the contract for the second ship of the steam navigation company was made on Monday, and next day preparations for the getting up the frame work were commenced. The first ship will be launched about the 15th prox. We are very glad to learn that the subscription to the stock of this company is going on favorably, and that it only falls short \$76,000 of the amount needed—500,000. This will probably be taken within a week or two.

A new mill-pond, covering 80 acres, has lately been formed at Cabotville, Mass. The power acquired by both dams is estimated to be sufficient to carry from 80,000 to 100,000 spindles. A few years of prosperity will doubtless witness the rise of a village of 8,000 to 10,000 inhabitants, where, until within a few years, the solitude has been almost unbroken, since the red man roved along the banks, or darted his canoe across the waters.

A memorial is to be presented at the coming session of the Legislature of N. York, for a canal upon the south side of Long Island. The project is to unite and make navigable the several bays upon the south side, from Riverhead or Southampton, to Coney Island.

The type-setting machine noticed in our columns last week, as having been successfully introduced to work in the office of the New York Sun, seems to be an old affair, which was abandoned some years ago in England. The New York Herald of the 27th ult., makes the following reference to it:—

"Some of the daily papers of last week have brought this machine before the public as a great wonder. But unhappily it is neither that nor a novelty, nor a dangerous competitor to type-setters.—It was known long ago in England, and has been tried in Clowes' printing office, in London, where it has been demonstrated that its application to practical purposes offers no pecuniary advantage or economy, though it can set up a large quantity of type; it takes as much time to fill the canals again with type as it now takes to set them up by hand, and the setting up with the machine gives occasion to so much disorder and pi that Clowes found it a losing experiment, and returned the steam type-setter to its inventor."

#### "Parallel Railroads."

Under the above caption, the Rochester Democrat remarks that "the construction of a railroad on the line of the canal from Rochester to Syracuse, is again the subject of agitation in the towns on the proposed route. The presses at the points most interested speak warmly in favor of the measure, and those who are most active in the agitation feel quite confident that the work will eventually be constructed. In regard to the expediency of this work and its prospects of success, as well as the effects upon the interests of the state, we are, after a full investigation of the subject, constrained to differ from those who are taking measures to urge it forward. In the first place, we have no faith that the capital can be raised. We judge so from the fact that the state, within the last five years, has authorized the construction of some fourteen or fifteen railroads, all of them on important routes, none of which have been

touched beyond partial surveys. The citizens of Buffalo have subscribed liberally to the Attica and Hornellsville road; but there is very little prospect that it will be built immediately. If capital cannot be procured for these works, where shall we find the sum necessary for the construction of a line that will have to compete with the canal as well as the line already in operation? It surely cannot be raised along the route, and the course of our legislature in reference to railroads, claiming the right to regulate fares and reduce profits at pleasure, however just such interference may be deemed to be, will effectually deter eastern capitalists from investing in New York enterprises.

"A number of weighty objections present themselves against this enterprise—objections that have received additional force from the discussions in the various papers favorable to the project. The friends of the route claim that their work, if constructed, will reduce the rates of fare so low that all the travel will be diverted from the canals to the railroads.—So far as the travelling public alone are concerned, this might prove a benefit. But the canal interest is the great interest of the state. It gives employment to thousands where railroads do to tens; and renders profitable large investments in boats, packets and warehouses. In time it will contribute largely to the ordinary expenses of the state, and relieve the people from general taxation. A large debt is now upon its hands, and the work of enlargement—a work all important, by the side of which railroads dwindle into insignificance, is also thrown upon its resources. The friends of the canal—and they comprise five-sixths of the people of Western New York—will never consent that this great work shall be crippled for the benefit of the travelling public and a mere corporation."

We agree entirely with the editor of the Democrat in most of his views as given in this article, but not in his opinion of the value of railroads.

#### Manufacture of Plate Glass in England.

The Mining Journal states that perhaps there is no one article, the produce of the manufactures of the isles of Great Britain, in which there has been, for the last thirty years, so much room for the investment of capital, in competition with those who held the trade in their own hands, as that of plate glass. The statistics of this manufacture show some extraordinary features—always having a demand far beyond the power of the makers to supply, enormous profits have been made; and it is a well-known fact that one house, in 1845, the year of the total repeal of the duty, made in twelve months a profit of £30,000 on a paid-up capital of £125,000, or very nearly 25 per cent. per annum. Notwithstanding the increasing supply annually, since 1819, the demand has increased in a greater ratio; in that year the manufacture was 3000 superficial feet per week, of indifferent quality, with no complaint as to the supply; in 1827 it was 5000 feet, considerably improved, but inadequate to the demand; in 1836 it was 7000 feet, improved, but still insufficient; and in 1844 it had risen to 23,000 feet per week, still improving in quality, but the supply more inadequate than ever. In 1819 the average price for all sizes was from 20s. to 25s. per foot, and is now from 5s. to 6s. per foot. Large plates—say 144 inches by 75 inches—could not be manufactured till about the year 1836; they are now made with facility, and sold at 35s. 7d. per foot, while French plates, made at St. Gobain, free of duty, cannot be obtained of that size under 67s. 11d. per foot. There are still only seven houses engaged in this manufacture; the sales



average 45,000 feet per week; and the demand is so on the increase, that the works are kept in constant operation, some of them day and night. The duty remitted in 1845 amounted to about forty per cent. on the cost price—while such reduction has only benefited the consumer to the extent of fifteen per cent.; and even at these enormously increased profits, as we have before stated, the demand far exceeds the supply.

#### Awful Neglect and Accident.

We are particularly pained to day, to record the details of one of the most shocking accidents it has ever been our lot to know in this country, which took place upon the Reading railroad, on Thursday evening last. The explosion occurred just beyond the Mill creek bridge, a little way above Manayunk, some nine or ten miles from this city—by which seven beings were immediately killed—not one of the whole number present, being left to tell the story! The locomotive attached to an empty coal train, bound up, exploded with a dreadful crash, at the spot we have named above, destroying the engine, tender, etc., and blowing to atoms the persons who were unfortunately upon the cars. The "Spirit of the Times" gives the following terrible particulars in relation to this melancholy accident.

The cause of the explosion, says that paper, is, of course, enveloped in mystery, and can only form the subject of conjecture. The most rational conclusion is that the water was allowed to get out of the boiler, and when the flues were perhaps red hot, the water was let on. Gas being thus rapidly generated produced the explosion. The boiler exploded upwards and outwards, throwing the driving wheels out each side, tearing the engine to pieces, staving in the tank, wrecking the tender, damaging half a dozen of the cars—and producing altogether, it is believed, the most frightful wreck of the kind ever beheld. The terrible result that ensued was never equalled. The body, or rather the trunk of the body of one of the brake men was thrown up a hill, the distance of at least two hundred and fifty yards. Beside, or near him, were two pieces of iron from the boiler, weighing two or three hundred pounds each, that were found indented some two and a half feet into the ground. Another body was found upon a small island of ice in the stream, that had been blown through a large tree, in the limbs of which parts of the clothing were hanging. The body supposed to be that of the engineer was discovered driven into the water tank. Sticks of wood were forced thro' it, and from this circumstance, it is thought that the unfortunate man must have been either on or near the wood-pile, or it may have been, was in the act of handling the billets at the moment of the accident. One man was blown up the hill and his body being doubled up, was sent through a fence, which it carried with it. A body was found with nothing on it save a scarf around his neck; others with only pieces of the flannel shirt. Out of the seven bodies, there was not more than one that was whole enough to be recognized with any certainty. All were stripped entirely of their clothing, except here and there a remnant that clung to some portion of them. The head of one of the men was found mashed to a jelly, another was found

separated from the trunk, and an arm was picked up in a field with a tin cup in the hand. The corpses were all horribly mutilated, torn, burnt, and blackened.

The report of the explosion was tremendous. It was heard a great distance, and the concussion shook the windows at the Falls of the Schuylkill, four miles from the scene. The locomotive was an eight wheel one of the largest and finest description, and was named "Neversink." The collecting of the bodies yesterday was a melancholy and distressing sight; the most affecting part of which was an aged father bending over and bathing the corpse of his son.

The agents of the company at this end of the road, immediately on the receipt of the intelligence of the accident, proceeded to the scene of the disaster, and were untiring in every exertion that humanity dictated.

#### Commerce of the Canals.

The Albany Argus has prepared, from official sources, a table of the commerce of the canals of the state for the past season. It presents a very gratifying result of the year's business, and exhibits in strong colors the wealth of that state and of the west.

Accompanying the table showing the movement from and to the Hudson for the past season, is a similar one of the movement for the season of 1845.

It is shown that there is an increase in the tonnage of 172,579 tons, and of \$14,826,461 in the value of the property transported, and the excess both in tonnage and value over previous years is still greater.

The value of the entire movement of property from and to the Hudson, is still greater by \$4,490,353 than the exports of the United States for the fiscal year ending July, 1844, and greater by \$7,297,845 than the value of the goods imported into the United States for the same time.

These facts speak volumes in favor of the importance of this commerce, not only to that state, but in a national point of view, as worthy the attention of the general government.

#### Plank Roads.

The subject of plank roads seems to have excited a good deal of attention lately. The Syracuse Journal of a late date, remarks that the one constructed last year, in that county, has "satisfied every person who has travelled on it, of its vast superiority over any other road in the country. We are permitted to publish the following letter to the Hon. John Stryker, of Rome, from the Engineer of that road, as applications are continually made to him for information on the subject."

The following letter from GEO. GEDDES, Esq. C. E. upon this subject, will be read with interest. Mr. G. is very favorably known to the railroad community—and he is eminently well qualified to offer information upon this subject. We learn that Mr. G. and Mr. Alvord of Salina, were the principal managers in constructing the plank road from Salina to Brewerton.

"They visited Canada together"—says the Rochester American, "previous to the commencement of this road, examined several, consulted with experienced gentlemen connected with enterprises of this character there, and then returned with a general knowledge, and made their estimates and commenced operations. Some months ago we had

the pleasure of an interview with Mr. Geddes, and were both astonished and gratified by his statements of the complete success attending plank roads, wherever tried. He was firmly of the opinion that a system of such roads radiating from this city as a centre, into the rich country which surrounds it, would very greatly increase its wealth and business, as well as prove highly profitable to the stockholders. We commend his article to the attention of the public. The draft of a proposed act, therein mentioned, we omit, as not of such general interest."

FAIRMOUNT, ONON. CO. N. Y. }  
December 24, 1846. }

JOHN STRYKER, Esq., DEAR SIR.—Your letter of the 22d inst., came to hand yesterday. You say that it is proposed to make plank roads in two directions from Rome, and that you understand that I am "fully informed as to the cost, manner of construction, etc." and you ask me to communicate to you such information as may be useful to you.

I have twice visited Canada to procure information upon this subject; and as you probably know, during the past year, I have had charge, as Engineer, of the construction of the Salina and Central Square plank road, twelve and a half miles of which are finished and now in use. Any information that I have acquired by my examinations and experience is at your service; and so far as I can, in a letter, I will state what appears to me to be important to the objects you have in view.

By the new constitution, general laws are to be passed providing for the creation of corporations for such purposes as making plank roads; and, in my judgment, the first thing is for all the friends of plank board projects to unite, and procure the enactment of such a law by the Legislature, at an early day of the next session. At the suggestion of various gentlemen, I have drawn up a law, which, in my opinion, will give all the powers necessary to the companies organized under it, and amply protect the public and the owners of land from injury. A copy of the proposed law I will send you.

The mode of construction of a plank road is the point upon which you are most desirous of information.

In case it is expected that a *very great amount of travel* is to pass over the road, two tracks, each eight feet wide, will be required; but it is not probable that any road coming into your town will require more than one track; at any rate for more than a few miles out of town. It is difficult to persuade a man, who has not seen the thing tried, that one track is entirely sufficient, except in cases of an *extraordinary amount* of travel; but it is so, and the road out of Salina, has but one track, except over places where proper earth could not be obtained with which to make a road along side of the plank. Over the light sand plains, where, in dry weather, a wagon would cut into the sand, we laid two tracks, but over clay or common earth, we laid but one; and during the very rainy autumn just past, our road



has constantly been in good order for teams to turn out.

In case there is so much travel that common earth cannot be kept in good order for turning out—then the tolls paid by that travel will compensate for the cost of the second track; so that the interests of the public and the owners meet, and the thing will regulate itself. If the second track is required, then its cost will be a good investment.

There is another particular in which the public interests, and the interests of the owners go together—the tolls. The character of the Salina road allows the Directors to regulate the tolls within certain limits; in summer we exact three-fourths, and in winter one-half the sum allowed us from vehicles drawn by two animals. It is our interests to encourage such an amount of travel as to insure the *wearing* out, rather than the rotting out of our timber, and by taxing the travel lightly, we increase the amount.

The track is laid on one side of the road, so that teams coming into town keep it, and teams going out yield it in passing. The tonnage being chiefly in one direction, it is generally the unloaded teams that have to do all the turning out.

The plank are of hemlock, eight feet long and four inches thick, laid crosswise of the road, on sills four inches square. The earth is broken up and made fine, the sills are bedded into it, and the surface graded smooth; the plank are then laid on the sills, care being taken that the earth is up to and touches the plank at every point. This is important, for if any space be left for air under the plank, or along side the sills, dry rot follows. I saw, in Canada, a road that had been worn out, and was being rebuilt. The sills were good and the plank were sound on the under side, save where air had supplied the place of earth, and there they were destroyed by rot. The plank having been laid, the next thing is to grade a road some ten or twelve feet wide on one side, and two or three on the other, by taking earth from the ditches on each side, and bringing it by a ditch scraper just up to and even with the upper side of the plank, so that if a wheel runs off the track, it passes upon a smooth surface of earth. The ends of the plank should not be laid even, but a part should project from two to four inches by the general line, to prevent a rut being cut just along the ends of the plank. If the ends of the plank are even, and a small rut is made, the wheel of a loaded wagon will scrape along the ends for some distance before it will rise up to the top of the plank, unless the wagon moves in a direction nearly across the road; but if the wheel can not move two feet forward without coming square against the edge of a projecting plank, the difficulty of getting on the road is avoided. It is not necessary to pin or spike, the plank to the sills.

Perfect drainage must be secured, and to that end the ditches must be deep and wide, and good sluices wherever water crosses the road. This is the important point—drain perfectly.

As to the cost of such a road, I will answer you by giving you a copy of my estimate for the Salina road, which very considerably exceeded the actual cost. It is proper to inform you that this road was made upon the bed of an old road, filled in many places with stone and logs. The right of way cost us nothing. The estimate was for plank three or four inches thick. Where we laid two tracks, we laid one of them with three inch plank, but the main track was four inches thick. It is economy to use thick plank if the travel is sufficient to *wear* out the road, but if it is to rot before it is worn out, then of course thin plank should be used. The Canada roads are generally three inches thick and are made of pine, and last about eight years.

Estimate of the cost of a single track plank road, eight feet wide, for one mile:

Sills 4 in. by 4 in..	14080 ft.	B. M.
8 ft. width of p'k 3 in. thick	127726 "	"
	140800	
At \$5 a thousand, . . .	5	
	\$704,00	
Laying and grading \$1, a rod, . . . . .	320,00	
	1024,00	
Engineering, Superintendence, etc. 10 per cent.	102 00	
	1126,00	
Gate houses, say \$100,	100,000	
	1226,00	
For a 4 in. road add 42240 ft. at \$5 per M., . .	211,00	
	1437,00	
Sluices, bridges and contingencies, . . . .	63,00	
	\$1500,00	

We did not let out to contractors the construction of our road, for the reason that, we were very desirous of securing the bedding of the timber perfectly, a thing that my observation in Canada satisfied me was not always done, when the work was made by the rod; and as plank road making was a new business, no person was willing to undertake the work at the price estimated. By doing our work by the day, we not only secured its perfect construction in this particular, but we saved some thousands of dollars in the cost. After we had acquired experience and skill, we reduced the cost of grading and laying the road to from thirty to fifty cents a rod, including construction of sluices and bridges, and grubbing, and in short every thing but materials and superintendence.

If you make plank roads, I advise you by all means to do the work by the day, and put at the head of the business, a man who is fully competent to engineer and direct the whole matter. The variation of a few inches in the line of a road, may tell largely in the

cost of construction. The lumber you can best obtain by dividing the road into eighty rod sections, staking them out and letting them to the most favorable proposers—the lumber to be distributed along the line equally as near as may be, as it is delivered.

As to the value of plank roads to the public and to the owners, I can best answer you by saying that I have seen a McAdamised road taken up, eight feet in width, to make room for a plank track—and by informing you that men who have travelled over the best roads in England, say that there is not in Great Britain as good a road as the Salina plank road.

Our stock cannot be purchased at par,—and various projects are being started for the extension of our road, and constructing other roads, radiating from the capital of our county.

Very respectfully,

Yours, &c.

GEO. GEDDES, Civil Engineer.

#### New York and Albany or Hudson River Railroad.

We find the following exceedingly appropriate article on this important subject, in a late number of the *New York Journal of Commerce*. It is from the able pen of a gentleman who has, often before, labored for the best interests of the city of New York, without having his labors—at the time—duly appreciated by those most deeply interested. He is, however, fortunately for the people, one of those men who, conscious of being right on the subject under consideration, labor on, even though others differ in opinion, and labor against them. In this great work, however, as in that of "city sewerage"—for which he labored long and devotedly—he may look for entire success, at an early day, if the property holders of New York can be made to see their own true interest.

From the *Journal of Commerce* of 19th December.

**Hudson River Railroad.**—The Hudson river, among its great benefits, accommodates a breadth of country on each side of it of about 20 miles, or a strip forty miles wide. The industry conducted within that space finds accommodation at the river towns for prosecuting its business with the city: accommodation of all sorts,—ware-houses, taverns, merchants, capital: indeed, all the arrangements necessary for the business of an active region of country. A railroad running through these towns will, at the close of navigation, take up the trade, where the boats have it, and carry it on without any other change than that of the medium of conveyance. The facilities of the kind above enumerated, will be quite as needful to those who use the railroad, as to those who use the river. There are people, however, intelligent, candid and respectable, who insist that a road running on the extreme right of the belt of forty miles, cut though it must be through cultivated fields and along small streams and rivulets, and over the mountains, and near the Housatonic road, would better accommodate the trade, be more profitable to New York, and yield a larger revenue on the stock. A mere statement of the case, so that reflection may seize hold of and act upon it, must set the matter right to most

minds. They will perceive that those who go to the river when the navigation is open, will conduct business there over a railroad when it is closed—that a road twenty miles to the right of the river would be of no use to those living on its left, and who in the winter might cross on the ice to a nearer conveyance—that no facilities for conducting trade would exist on the inland route—and that the wealth accumulated at the towns would be seriously diminished by a road that should divert from them their usual trade.

The inland road would, like our lateral canals, extend through a fine agricultural region, and like them not pay; the river road should be where the great trade has always been conducted to the profit of carriers and all engaged in it.

There are those also, who are constantly urging that a road along the river will be unable to stand competition with the river, unless the very highest speed is accomplished, such as is usual on the English roads, and that it will cost too much to adopt their plans.

The objection applies to any road between this and Albany, but the answer to it, as far as concerns the road in question, is most complete.

The Edinburgh Review for October, 1846, in a powerful article on "Railways at home and abroad," shows that what in England produces high speed, may more easily be obtained cheap, on the river route, than on any other whatever.

One great expense in building the English roads arose from the rails being sustained "on square stone blocks measuring two feet on the side, and twelve inches deep. Cross sleepers of timber (says the Review) were only used as temporary supports on embankments until their settlement and consolidation should be effected by time and work. The stone blocks are, however, now everywhere abandoned, and the cross sleepers of timber permanently and universally established."

The cheap American plan of cross sleepers of timber, is found in England to be the best; proving that their expensive foundations did not constitute the element as is erroneously supposed, of their superiority in speed. It arose from other causes. They rejected all curves but those of a large radius, and restricted themselves to gradients of a low limit. See Page 260. These, obtained only at immense cost in England, were the main elements of their success in accomplishing high speed.

I attempted to show in a previous article, that the dip which occurred at the highlands in a long chain of mountains;—the course of the valley, straight almost as the flight of an arrow; the flow of the tide extending up to and beyond Albany; made the valley of the Hudson eminently suited for a railroad; and that we should abandon a great natural advantage, an advantage possessed by no other state aspiring to the western trade, to leave it and climb over the mountains.

The surveys show that the general route

through that valley is nearly level, and that the grades are not over seventeen feet in the mile. The few curves which exist have the wide radius of 2000 feet; in a line whose course is generally straight.

On the river route alone, nature has bestowed these important benefits,—benefits which make the transportation of passengers and goods cheap and rapid, which enable an engine of small power to do heavy work; which make the enormous expense that accrues from deep cuttings and heavy embankments unnecessary; and which save expense in maintaining the road, and in repairs, such as belong to those of high grades, built over mountains and across deep valleys.

Objection is also made to the use of this route on the ground of expected difficulty from snow and ice. The Emperor of Russia under the superintendence of Mr. Whistler, an American, is now building a road from St. Petersburg to Moscow, and would no doubt be quite amused to hear that in this latitude hesitation existed for such cause, on the part of those who preferred a route over mountains. It is estimated that every 80 yards of elevation is equivalent to one degree of latitude north, and that the mountains in question are from seven hundred to one thousand feet high. The great snow storm of February 1845 extended to the Boston and Albany road, but the track was cleared in about twenty-four hours. It lay for nearly a fortnight on a road much nearer home. The river road being on the east bank of the river, (the hills with an aspect to the West,) but little difficulty can be experienced from the melting of the snows, certainly as little as on any other route.

Those who are alarmed at the occasional passage of the road over the few shallow inlets of the river, may read with profit an article in the Foreign Quarterly for January, on the relative advantages of the routes through Asia proposed to the East India Company for a road to be built by them from Mirzapore to Calcutta; one, along the Ganges, the other and the favorite, extending over an extensive district of country subject to inundations, and but lately twenty feet under water, and requiring a causeway twenty-five feet high.

Trivial objections such as those which have been considered were long ago overcome in the progress of the railroad enterprises of the world, and if New York is to halt for them, she must not only go behind Boston, but behind all the world besides. They are objections not taken by Engineers, nor by persons who would probably otherwise be friends of this route.

While we are discussing them however, Boston is securing the trade that belongs rightfully to us, the trade with our back country, reached by us, except in the winter, through the valley of the Hudson and the Mohawk, and she is securing it as perfectly as if the Hudson flowed one quarter of the year from Albany to Boston.

Should some convulsion of nature deprive us of its waters, what amount would we not

pay to restore them to its banks; and yet its loss for one fourth of the time, (one year out of four,) and what is equivalent to its diversion for that time to Boston, make no impression on our sagacious capitalists!

A rivalry in extravagance, hitherto unknown, in our dwellings and their decoration, seems to animate them, instead of that exalted rivalry which civilization has lately called into play for the benefit of mankind.

Boston acts not thus, her railroads form a perfect net work over Massachusetts, and they are penetrating into our own state. Acting upon the cupidity of Northern and Western New York, to whom she offered a second market for their sales and purchases, she readily overcame every feeling of friendship and allegiance to this city, and from her liberality, her help to our main line of roads which this city would not build, procured weight and influence in the councils of our state.

This city has none. "You opposed our canal," said a member to me when pressing on him the necessity of this road; "you would not help to build our railroads; your best men take no part nor interest in our legislation, you cannot expect much sympathy for you here."

This is the contemptuous feeling which our want of public spirit has secured, and is likely to continue towards us, while the master spirits of Boston have won the respect of all men, and their counsels are listened to by the public functionaries of Massachusetts, and they take part and lot in the fortunes of the state.

A happy day will it be for New York, when our best citizens shall employ themselves in matters of public concern, and see that the impress of their opinion and acts is made on her future progress.

They may then ask some other question than the one which now may safely be answered in the affirmative, whether it will pay a good dividend should they subscribe to a road to Albany.

The city of New York has now before her, a charter, obtained with the greatest difficulty, and the maps and survey of the river route, which expires unless subscribed to by the first of March. An engineer of tried experience, and of undoubted integrity, whose services are withheld from a rival state, stands ready to stake a reputation not surpassed for prudence and skill, on the success of this enterprise, an enterprise which a few disinterested men, with a generous subscription of their own capital, present confidently to their fellow citizens.

GEO. B. BUTLER.

#### (Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week

ending—	Jan. 11, 1845.	Jan. 10, 1846.	Jan. 9, 1847.
Travel.....	\$1,475 33	\$1,549 24	\$2,272 54
Freight on goods. 1,194 91	1,895 16	2,035 01	
" coal... 5,530 20	12,386 61	18,515 86	
	\$8,200 44	\$13,831 01	\$22,823 41
Coal trans.—tons. 5,785	11,887	13,267	



**A Railroad to the Pacific.**

Geo. A. Wilkes, in the course of a pamphlet, urging the importance of a railroad from the Atlantic to the Pacific, says that "aside from the considerations of national aggrandizement this work is warranted by considerations which make their appeal as well to the heart of the philanthropist, as to the calculation of the statesman. It would not only bind with an absorbing and relentless attraction, the separate interests of the north and south, but would be a benefaction to the laboring masses of both, and would come with a peculiar grace from a parental government to its most deserving children. In addition, it would be an evidence in favor of the government, that among all the chartered privileges lavished time and again upon the rich, it had found it in its heart to make at least one charter for the poor. Lastly, if the magnetic telegraph should be added to this comprehensive scheme, where shall calculation look for the limits of its vast results? Basing our calculations upon our wonderful advance in the present century, it is no extravagance to predict that in less than fifty years, we shall behold in our beloved country, a government holding the preponderance of power, owning a population of a hundred millions, with a central capital in the great valley of the Mississippi, commanding from its nucleus of power an electric communication over three millions of square miles, and diffusing its enlarged spirit of liberty, philanthropy, peace and good-will, to the uttermost ends of the earth, in a fulness that will realize at least the fondest dreams of the millennium!" He also urges that the earliest practicable time should be adopted to carry out the design, and closes thus:

"While France and New Grenada meditate the segregation of the continent, and while England is employing an expensive squadron in the Arctic sea, we certainly are

called upon to avail ourselves of the superior advantages offered us within the bosom of our own territories, for accomplishing the same grand purpose which impels them.—We owe this to our own character and to future generations, and we also owe it to that spirit of progress which, directed by the spirit of Columbus, awakened our continent from its sleep in the abyss, and which, after having endured a check of four centuries as its only reward, now imperatively demands the consummation of its purpose. Arouse, then, America, and obey the mandate which destiny has imposed upon you for the redemption of a world! Send forth upon its errand the spirit of enfranchised man; nor let it pause till it enlarges the boundaries of freedom to the last meridian, and spreads its generous influence from pole to pole!"—*Phila. Inquirer.*

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by **DAVIS, BROOKS & CO.,** Jan. 2. [11f] 68 Broad St., New York.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to **FULLER & BROWN, Agent,** No. 139 Greenwich, corner of Cedar street. September 18, 1846. 10:39

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee **G. A. NICOLLS,** ja45 Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.—**They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,** 45 North Water St., Philadelphia, or by their Agent, **ROBT. NICHOLS,** 79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR** the sale of

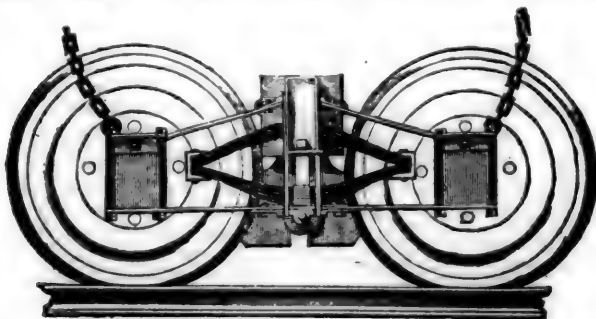
Codorus, Glendon, Spring M.J. and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,** 59 North Wharves, Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

**New York, May 4, 1846.** **W. H. CALKINS, and Others.** To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Sup't of Power.** I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

**Reading, Pa., October 6, 1845.** [Signed,] **G. A. NICOLL,** Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,** Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co. This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

[Signed,] **JOHN LEACH,** Long Island Railroad Depot, Jamaica November 12, 1845. } 1y19 Sup't Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CHONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 3d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 130 Meeting street Charleston, S. C.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Stiers, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Eiting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
ja45 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

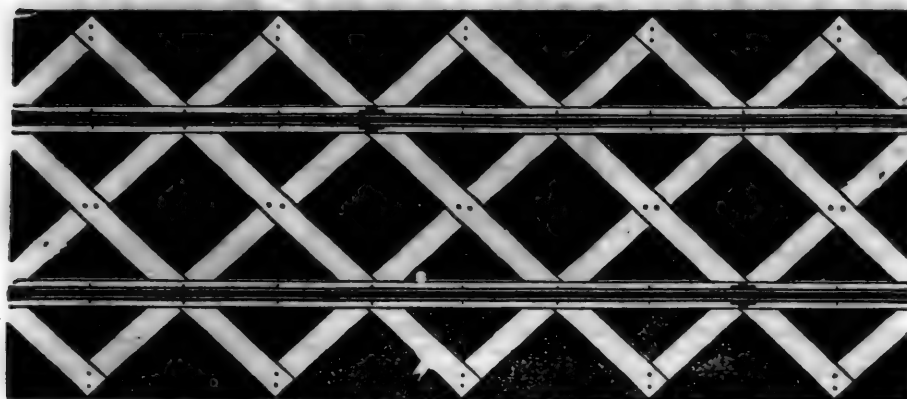
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

.. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**DAVENPORT & BRIDGES CONTINUE** to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFUL**—but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at \$10 = .....\$686 96

587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at \$13 = ..... 57 24

13,000 Spikes = 2,250 lbs. at 4½ cts. .... 101 25

Workmanship free of patent charge ..... 600 00

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

Cost of one mile including the laying of the Rail .....\$1,145 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 33tf

# ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other; and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ropes, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	21 —		50	15-16	20
13	3½	8 3	8½	16 —		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.

No 23 Pear street,  
ly10 near Third, below Walnut,  
Philadelphia.

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Dec. 25, 1y\*

Pres't. Mt. Savage Iron Works,  
Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT &amp; CO.,

Agents.

ly48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

46tf

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLIANCE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

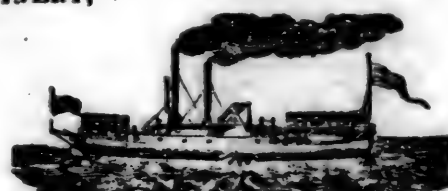
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY,  
AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 4

SATURDAY, JANUARY 23, 1847.

[WHOLE No. 553, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7 1/2 a.m. and 3 1/2 p.m., and Providence at 8 a.m. and 3 1/2 p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5 1/2 p.m., and 10 1/2 p.m. Leave Dedham at 8 a.m. and 4 1/2 and 9 p.m.

Stoughton trains, leave Boston at 11 1/2 a.m. and 4 1/2 p.m. Leave Stoughton at 8 a.m. and 3 1/2 p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7 1/2 a.m. and 2 1/2 p.m.

Boston for Great Falls at 7 1/2 a.m., 2 1/2 and 3-25 p.m.

Boston for Haverhill at 7 1/2 and 11 1/2 a.m., 2 1/2, 3-25 and 5 p.m.

Boston for Reading at 7 1/2 and 11 1/2 a.m., 2 1/2, 3-25 and 6 1/2 p.m.

Portland for Boston at 7 1/2 a.m., and 3 p.m.

Great Falls for Boston at 6 1/2 and 9 1/2 a.m., and 4 1/2 p.m.

Haverhill for Boston at 7 1/2, 8 1/2, and 11 a.m. and 3 and 6 1/2 p.m.

Reading for Boston at 7, 8 1/2 and 9 1/2 a.m., 12 m., 1 1/2, 4 and 7 1/2 p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.  
Sandusky, Ohio. M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April

1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6 1/2 A. M. and 5 1/2 P. M.

FARE REDUCED to \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't, March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 d

## NORWICH AND WORCESTER RAILROAD.

Road. Summer Arrangement, commencing

Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 10 a.m., and 4 1/2 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1 1/2 p.m. train from Boston.

New York Train via Long Island Railroad.

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 p.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4 1/2 p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't.



**TROY RAILROADS.—IMPORTANT NOTICE.**

Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 a.m. and 4 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

**TROY AND SCHENECTADY RAILROAD.**

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 a.m. and 1 p.m. and 6 p.m., or to connect with the trains for the west; leave Schenectady at 2 a.m., 8 a.m., 1 p.m. and 3 p.m., or on arrival of the trains from Buffalo and intermediate places.

**TROY AND SARATOGA RAILROAD.**

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 a.m., (arriving one hour in advance of the train from Albany,) and at 3 p.m. Returning, leave Saratoga at 9 a.m. and 3 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7 a.m. and

Cumberland at 8 o'clock, passing Milcott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

**THE SUBSCRIBER IS PREPARED TO** execute at the Treaton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

**NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.**

Passengers destined for:

Columbus and Cincinnati, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

**TIME.**

From Buffalo to Sandusky..... 24 hours.  
Leave Sandusky 5 a.m. to Columbus.... 14 "  
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

**FARE.**

From Buffalo to Sandusky, Cabin.....\$6 00  
" " " Steerage..... 3 00  
" Sandusky to Columbus..... 4 50  
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 3 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem, Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners, White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y42

**BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare.**

Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:  
Leaves Baltimore at..... 9 a.m. and 3 p.m.  
Arrives at..... 9 a.m. and 6 p.m.  
Leaves York at..... 5 a.m. and 3 p.m.  
Arrives at..... 12 p.m. and 8 p.m.  
Leaves York for Columbia at..... 1 p.m. and 8 a.m.  
Leaves Columbia for York at..... 8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburgh via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10

Through tickets to Harrisburg or Gettysburg.. 3  
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at..... 5 1/2 p.m.

Returning, leaves Owing's Mills at..... 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly

Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

**CENTRAL RAILROAD-FROM SAVANNAH TO MACON.**

Distance 190 miles.

This Road is open for the transportation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally.... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses

and oil).....\$1 50 per barrel.

On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed

machinery..... 40 cts. per hundred.

On hdds. and pipes of liquor, not over 190 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,

Gen'l. Sup't. Transportation.

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, Civil Engineer,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 ly

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—	To Atlanta.	To Oothcaloga.
Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100 lbs. 35	
Crockery, per cubic foot.....	0 15	35
Molasses and Oil, per hhd., (smaller casks in proportion) 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1v34

**GREAT SOUTHERN MAIL LINE VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$31 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1v11

**STOCTON & FALLS, Agents.**  
**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearings and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 150 miles.	Between Charleston and Oothcaloga, 356 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37	0 62
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	95
Salt per Liverpool sack.....		
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

**CHAS. F. M. GARNETT,**  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
a45 E. cor. 19th and Market sts., Philad., Pa. 1y

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 P. M. train from Cincinnati, and the 9 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47tf W. H. CLEMENT, Sup't.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 5 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 9 p.m.

J. R. TRIMBLE,  
2tf Engineer and General Superintendent.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers in tight papered barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

**JOAN F. WINSLOW, Agent,**  
Albany Iron and Nail Works,



**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury fronting on and east of Parker street, containing 68,497 square feet, with the following building: thereon standing.

Main brick building, 120 feet long, by 46 ft wide two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 11 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 ft, two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

#### WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 3500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Tubes.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

#### PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

J. BALL & CO.

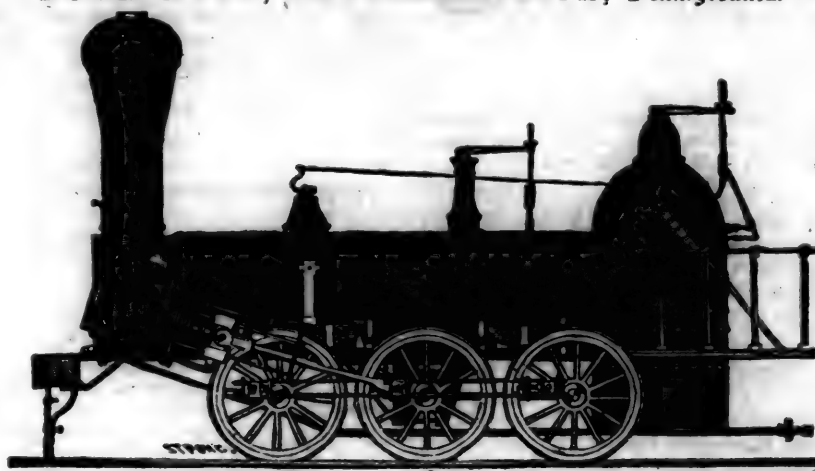
#### TO LOCOMOTIVE AND MARINE EN-

gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	"	×	24 " "
" 3,	14½	"	"	"	×	20 " "
" 4,	12½	"	"	"	×	20 " "
" 5,	11½	"	"	"	×	20 " "
" 6,	10½	"	"	"	×	18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

#### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

**ANDREW C. GRAY,**  
a45 President of the Newcastle Manuf. Co.

#### RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by  
**A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia.

#### KEARNEY FRIE BRICK. P. W.

**BRINLEY,** Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35



## THE NEW RAILWAY TRACK.

The Baltimore and Ohio railroad company have, within the past week, completed the reconstruction of 30 miles of their railway east of Harper's Ferry, having substituted for that distance a substantial track, similar to the track west of that place, and laid with a rail of 51 lbs. to the yard, for the former plate rail of 15 lbs. per yard. The heavy and rapidly increasing trade of the road, had, as is well known, some time since rendered this change in the character of the structure admissible and indeed necessary, and it has now, to this extent, been accomplished, and with great relief to the portion of the line on which the light rail still remains. This part is now reduced to some 31 miles, which, when replaced, as is proposed, by the improved track, will make an unbroken line of heavy rail from Baltimore to Harper's Ferry. The new track just finished begins at Harper's Ferry and extends eastward to the Monocacy, 23½ miles. The remaining 6½ miles of the 30 is in three detached sections on this side the Monocacy, laid at points where they are calculated to be of the greatest service until the entire line of the old track shall be rebuilt. We are informed that the time occupied in the construction of the new road has been about eight months from the first delivery of materials—being at the rate of something less than a mile a week. The circumstance which limited the advance of the work, was the delivery of the iron rails; and it is with pride and pleasure we state, that this most important and expensive portion of the structure, hitherto drawn from abroad, was manufactured upon the very line of the road itself. The weight of iron used was about 2450 tons—one-half of which was rolled at Mount Savage, 9 miles from Cumberland; and the other half at the Avalon works, a similar distance from Baltimore. The castings and bolts were also of Baltimore manufacture, and, with the exception of the sawed timber, which came chiefly from the Susquehanna, and the spikes, which were made at Troy, N. Y., all the materials of the new road were of growth and manufacture indigenous to our State and city.

The track, we learn, was opened for use in short sections, as finished, so that the benefit of it has been partially and increasingly experienced since August last. The last section was passed over by the trains but four days after the last parcel of rails left the rolling mill—showing that no time was lost in availing of the advantages of the new structure. The deranged state of the old road required that the new should be thus brought into active use as fast as possible, and thus it was subjected to the immediate action of a very heavy trade, in a raw and uncompacted condition. The excessive rains of the past season had also kept the bed of the road, which at that part of the line consists chiefly of a stiff clay soil tenacious of water, in an unsettled state. These circumstances, united to the speed at which the trains were driven over the new track, in the irrepressible pleasure on the part of the engineers and conductors of changing it for the old one, caused

a good deal of derangement at first in the improved railway. This, however, we are happy to learn, is now remedied, and the track brought, for the most part, into good adjustment, which will continue to improve until the soil shall become thoroughly compacted under the new work.

The new track has been laid, we understand, at a cost less than the estimated expense, although for the iron rails higher prices have been paid than were therein contemplated.

The effects of this improvement are already manifested in the more early and regular arrival of the trains at both ends of the road, and they will be further felt in the reduction of expense in the maintenance of the road and machinery, and the increased safety and comfort of the travellers passing over the line. All these results will tell profitably in their effects upon the traffic and revenue of the road, and the wisdom of the measure of reconstruction will thus be made apparent, and its further prosecution to entire completion will be demonstrated.—*Patriot*.

## FORMATION OF COAL.

An account was given in the Evening Post, a few days ago, of the discovery at a considerable depth below the surface of the earth, in a process of transmutation into coal, of what was evidently once a mere log of wood. It was found by some persons engaged in making excavations, after they had passed through several layers of gravel, etc., firmly embedded in a thick stratum of clay. A small portion of it had, to all appearances, become coal, while other parts were as yet entirely wood, and others again in a state of partial transition. The last, on the application of fire, burned alike, but a little more rapidly than ordinary bituminous coal, emitting a similar smoke and odor. A specimen was presented to the editor of the Post, and said by him to be highly worth examination. This furnishes another and a rare proof of the correctness of the theory of the vegetable origin of coal.

Indeed, the assignment of this origin has come to be no longer considered a doubtful hypothesis; and the question now agitated is mainly as to the cause and manner of such immense conglomerations of vegetable matter as must have been necessary to the vast formations almost every year discovered. In the opinion of some, the deposits were made by great masses of the inconceivably luxuriant vegetation of the carboniferous era floating down the rivers until vast natural rafts were accumulated in the estuaries, which finally sunk, and after lying at the bottom and receiving fresh accessions of wood and earthy matter, for a long period of time, were finally by volcanic convulsions elevated above the waters. Others suppose the mines to have been gradually generated by the decaying and sinking of forests in marshy places, which first formed vast beds of a substance resembling peat, and afterwards passed completely into coal. There are many facts tending to support the latter supposition—as the discovery in a state of singular preservation, of animals, lost in such peat marshes generations ago—

There are also many facts confirmatory of the first hypothesis. Probably we should not much err in attributing the coal formations to both these agencies. The existence of sufficiently great forests to compose these formations, becomes readily credible, when we reflect upon the undoubted presence in the atmosphere of that era, of a remarkably large amount of carbonic acid gas—the direct effect of which would be destructive of animal life, (few or no traces whereof are accordingly found) but amazingly favorable to the growth of the vegetable kingdom. The whole earth must have been covered by one great wood. However, as we do not here intend an essay upon the subject, we cut it short off.—*Eureka*, for January.

## The Oregon Railroad Compared.

The subject of the Oregon Railroad, it is very well known, has, for a long time, been before the public, and our readers are aware, of course, that two plans have been presented to the people, for the route to the Pacific. Mr. Whitney presents one scheme, and Mr. Wilkes another—both of which have their friends. It is not, however, so generally understood what the schemes are, in detail—and it is evident that the public mind is not yet prepared to decide which is the most feasible, or practicable.—For the information of those interested, a late number of the New York Globe, publishes the following particulars in reference to both routes, which may serve to throw some additional light upon the subject:

MR. WHITNEY proposes, 1st. To construct the road himself, and to start from the lower point of Lake Michigan, on the eastern border of Illinois. 2d. He asks the government to give him a stretch of the public domain 60 miles in width, from that point to the Pacific Ocean, which he agrees to sell to obtain the means to build the road. 3d. The road to belong to him and his associates for the first twenty years after its completion, and afterwards to the government, "unless his associates or their successors" shall then conclude to pay the government 16 cents the acre for the granted land.

LIEUT. WILKES proposes, on the other hand, 1st. That the work shall be national, and that it be built and owned by the government.—2d. That its construction and control be confided to sworn commissioners selected by the State Legislatures, or by the people of the several states. 3d. That it start from the Missouri river, and run thence westwardly over the territories of the general government. 4th. That its revenues and tolls be kept down to the measure of its current expenses. 5th. That it be open to foreigners and their merchandize on the same terms as to our own citizens, with the exception of mere debenture fees on foreign freight. 6th. That it be built out of the public treasury, and that no special allotment of the contiguous public lands be made, except in favor of the laborers and mechanics on the road—it being recommended that each man who has worked one year upon it, receive, in addition to his usual wages, a reward of 80 or 100 acres, as a farm to settle on.

These are the two plans. They are both for the second time before the Congress of the nation, and the people can take their choice between them.

**American Locomotives in England.**

A correspondent of the Philadelphia Saturday Courier, writing from abroad, furnishes the following a title, which we commend to perusal:

Finding letters here, he says, which required me to go to Bristol, I took an omnibus for the railway station from which started the train for Gloucester, distance 53 miles, fare four shillings, time one hour and forty minutes. Having a little time to spare before the train set off, I went forward to see the locomotive, and was surprised to see on it in large gilt letters, "Philadelphia;" on another, "New York." This induced me to ask of the engineer if they were of American make, informing him I was an American, and was going in the train. He said they were made in Philadelphia by Mr. Norris; that 18 had come out, and fine little *Yankee horses* they were—could beat the London train, give them the start of a mile, and pass them with ease. The driving wheels of the English locomotives are five and a half feet in diameter—those of the American were but three feet, and I mentioned it to the engineer.

"Ah, never mind that," replied he—"you will soon see how she streaks it!"

The bell striking, I took my seat with a gentleman and two young ladies, his daughters from Yorkshire, who were also going to Gloucester. I informed them I was an American, which I found was a good introduction, as is the case now all through England, and tends at once to lead to some inquiry as regards the United States, and will in many instances, as it has done, create friends, which have proved very advantageous to the stranger while abroad. We were proceeding at a very rapid rate, and as the gentleman and myself had been conversing on the great improvements of the age, on which he placed all to the credit of the English mechanics, and how much America was indebted to England for most of the vast improvements in which that country was at the time engaged, he suddenly and familiarly placed his hand upon my knee, and asked with a smile if we could travel at the rapid rate we were then going, on the railroads in America, and finished by observing loudly,

"England—England, before all the world for locomotives and railroads."

"Yes," observed one of the daughters—"what would the world do without our little island, for people seem to come from all parts of the world to purchase their pins, needles, etc., and"—

"Bless me," cried out her sister, "we shall most certainly all be killed, if we go so fast; do, father, speak to the agent, and"—

"Killed, indeed," quickly observed the father, with a loud laugh of seeming exultation; "English locomotives are like English blood horses; when once warm there is no stopping them; what say you, my friend?" again squeezing my hand with a knowing inquisitive look.

"Only my dear sir, that the locomotive now drawing us at such fearful speed, was made in the United States—that is all," replied I bowing.

A loud laugh from the Yorkshireman and his daughters, followed my remark.

"Well said, well said—a good joke, indeed! An American locomotive on an English railway! ha! ha! ha! But my dear sir, excuse me," continued the gentleman—"but I cannot help laughing to see you look so very sedate, as if you really meant what you said."

"I do mean it, my dear sir," I replied—"and will repeat the assertion, and on our arrival at the station at Gloucester, will also convince you of a fact, which you seem to doubt, and treat with ridicule."

The national pride of the Yorkshire merchant was roused, and silently opening a large pocket book, took out a note of £100 saying,

"Excuse me, sir, but I am so positive that you are under some mistake, or have been misinformed, that I will place this sum against £5, merely for the joke's sake, that it is not so."

The whistle from the engine at that moment sounded, and the next moment we were at the station. After handing the ladies out, I observed to the father, smiling, if he would accompany me, I would convince him of the truth of my assertion. The daughters also joined us, to see if there was no mistake, and the passengers, hearing what had been asserted, followed as unbelievers.

There stood the little puffing *Yankee iron horse* with its keeper along side, and the blazing letters, "Philadelphia," on its side.

All seemed astonished, and many inquiries were made of the agent, who, observing their surprise, said with a laugh:

"Why, the company sent over to America for twenty at one order; we have a dozen on the road, and hope soon to have such fine little fellows on all the roads in England, for they go *ahad* and no mistake, like those who make them."

All ended with a laugh. The Yorkshire merchant insisted on my dining with him at the hotel; and in the afternoon I accompanied his daughters through the city to make calls and some purchases. Their father presented me with his card at parting, with a hope, if I returned through Sheffield, not to fail in finding him out, commanding his services, etc.

**Items from English Papers.**

The following items, from late English Journals, will be found interesting.

**Improved Wheels and Axles for Railway Engines and Carriages.**—Mr. Edge, of Manchester, has recently patented some improvements applicable to the wheels and axles of engines, tenders, carriages and wagons, to be used upon railways, and which are intended to be adopted in such cases, where the wheels are mounted upon revolving axles, and are designed to facilitate the transit of carriages over curves or other deviations upon the line of railway. In ordinary locomotive engines, tenders, carriages or wagons, used on railways, the wheels are both "staked," keyed or fastened upon their respective axles, and, consequently, both wheels revolve with the axles, while running; and, as is well known, in the event of passing over curves in the line, their action is not uniform, but subject to considerable friction and abrasion or "twist" against one side of the rails. This

invention consists in so constructing wheels and axles as to obviate this imperfection. The improvement is effected by "staking," keying or fixing only one wheel upon the revolving axle, instead of both, and leaving the other wheel loose upon its axis, and at liberty to turn, slip, or even remain for a time quiescent, when occasion may require.

**Croydon Atmospheric Railway.**—The same sealing composition which was used for closing the longitudinal valve during the extreme heat of last summer, has passed through its first freezing ordeal with great success. Many persons prognosticated that a contrary result would ensue. The trains since Monday were all run with the greatest punctuality, and the valve composition appeared perfectly soft and plastic, and wholly unaffected by the frost, though the thermometer at Forest Hill registered between 24 and 25 deg. during the whole of Tuesday and the latter part of Monday evening. Some slight irregularity has occurred, but this was caused by the drivers not knowing (in the absence of instruction,) how to adapt the "pressing wheel" to the altered state of the temperature, and had no reference to any inefficiency of the apparatus or sealing composition.

**Foreign Iron.**—Very extensive importations of iron are at present taking place, especially from Stockholm, Gothenburg and Gessle, the produce of Sweden: one vessel having brought 10,866, another nearly 14,000, and a third the large quantity of 18,349 bars of the article. Numerous other vessels have arrived from the same places with large cargoes, varying from 5000 to 10,000 bars of the same description of merchandize on board. These large arrivals at the present time may be readily accounted for, in consequence of the great demand for iron to effect the continuation or completion of the vast amount of operations in progress or in embryo throughout the country requiring such description of article for present or stock purposes, with the probability of the demand being still further increased at no very distant period. The iron mines of Sweden are known to be inexhaustible, and to afford ample means for responding to the calls which may be made upon them, and which, indeed, would appear evident from the fact above mentioned.

**Discovery of Copper in Western Australia.**—We have received a communication from Mr. Andrews, the editor of the Swan River News, by which we learn that the discovery of coal in that colony, which we announced about a month since, has been followed by that of copper, which is represented as having been found on the lands of Mr. Davey, of Fremantle: one writer states that he "had seen several specimens, and their solution in acids, of undoubted copper, brought down from the neighborhood of the River Avon." Another report states that "Mr. Davey had discovered copper ore lying on the surface of his land; he had smelted it, and obtained a small portion of copper, but was about to make further investigations when the news left."



**The Turbine.**—We learn from a recent number of an English paper, that a French machine has recently been introduced into use, which operates as a powerful water engine, and denominated the Turbine. It consists of a horizontal wheel, furnished with curved float boards, on which the water presses from a cylinder, which is suspended over the wheel, and the base of which is divided into curved partitions, that the water may be directed in issuing, so as to produce on the corresponding float boards of the wheel its greatest effect. The construction of the machine is simple; its parts not liable to get out of order; and as the action of the water is by pressure the force is under the most favorable circumstances for being utilized. The effective power appears to equal that of the overshot wheel, but accompanied by some conditions which render it peculiarly valuable. In a water wheel you cannot have great economy of power without very slow motion; but in the Turbine, the great economy is accompanied by a rapid motion. If a Turbine be worked with a power of ten horses, and its supply of water be suddenly doubled, it becomes twenty horse power; if the supply be reduced to one-half, it still works five horse power; while such sudden and extreme changes would altogether disarrange water wheels, which can be constructed for the minimum, and allow the overplus to go to waste. By the employment of a close pipe, water is now brought from a distance to several French factories, and there delivered with full force due to the altitude of its source on the Turbine.

#### **Machine for Raising & Lowering Miners.**

—The transactions of the Cornish Polytechnic society, state that the second machine, which has as yet been erected in Cornwall, for lowering and raising the miners, was brought into action at the United Mines in the parish of Gwennap, in the early part of June last. The number of men now being lowered and raised by this machine, is about 450; and of boys, 50; making together, 500 persons.—The average depth to which they are sent is 200 fathoms, which requires between 16 and 17 minutes, and the same time is required to bring them up, making together 34 minutes for the descent and ascent, while by ladders it would be full 65 minutes; thus showing a saving in time of a half hour per day, or in round numbers 150 hours in the year for each person. The clear profit thus derived is found to amount to upwards of £800 per annum, without including in the estimate anything more than the mere difference in time which is gained by the machinery. The cost of the machinery, and the erection of it, exclusive of the engine, which had been provided before, was somewhat less than £2000, it will therefore be repaid within two and a half years. The cost of erecting an engine of sufficient power for working the machinery would be about £1000; but in all cases where the engine can be applied to other purposes, it may be done with advantage, by making it powerful enough to accomplish the additional work which it would be required to perform.

**Mr. Neville's Iron Bridge for Railways.**—Some new tests have recently been applied to the iron bridge invented by Mr. Neville, and erected at the Brussels terminus of the Northern line. The experiments were instituted at the desire of the Belgian government, and were directed by a commission composed of engineers of the state. At first the strength of the bridge was tested by an engine and tender, followed by four wagons laden with 5000 kilogrammes, the weight of the carriages being 25 kil.; after which, another train of the same weight and length, passed over simultaneously with the former, but in an opposite direction, and in such a manner that both should arrive in the centre at the same moment. The next series of tests, consisted in running over the bridge, at first two engines, one after the other on the same line; then four engines, each pair fastened together, and running in contrary directions, meeting in the middle. This experiment was repeated, with the addition of joining to each couple of locomotives, four wagons laden as before. Next, two trains, occupying the whole length of the bridge, were stationed on one of the lines, while a train of two engines and four carriages ran over the other. This was repeated at different rates of speed. After this, while two engines stood on one line, a train, composed as previously, ran on at a great speed, and at the moment of reaching the middle, suddenly stopped. To terminate the experiments, it remained to produce, as nearly as possible, the effect which would arise from a train running off the line. For this purpose the rails were torn up at a part of the line, and disposed so as to produce the desired effect. A wagon, weighing, with its load, 10,000 kil. then ran on at a great speed; and at the entrance to the bridge, the engine which propelled it being withdrawn, the carriage continued its course until it came to the spot where the obstruction had been raised, and then bounded with its whole weight on almost the centre of the bridge. It ran over the bridge, but the shock was so great, that the axles were broken. Not one of these experiments even the last, at all disturbed the mechanism of the structure. Notwithstanding the satisfactory result of these proofs, the government has decided that nothing shall be wanting to ascertain, beyond doubt, the strength of the bridge; and fresh experiments will accordingly be made—one of which is to place a considerable weight on the bridge, which is to remain there a fortnight at least.

**Novel Project in Connection with Railways.**—A combination, or association, of a singular and original character, and embracing various subjects of interest, has lately been conceived, and as we understand, is nearly complete in its construction and arrangements. To make railway touring so pleasant that the traveller may be conveyed anywhere, however distant the point, with the slightest possible care on his mind by the way, or the necessity of troubling himself about any provision for the day or the morrow, the association referred to has been formed. The members, it is said, consist ex-

clusively of hotel keepers; and the servants of their respective establishments, as one of the rules, as reported, is that no servant shall be employed who shall not be interested for a certain number of shares. The company is to be governed by a board of management, composed equally of eight French and eight English directors. Messrs. Horne and Chapin, and Mr. Tyssen (a large landed proprietor, and owner of the Euston square hotels,) are said to be leading members and patrons of the undertaking. By the plan, as proposed, the passenger, from whatever point embraced, has only to state his object, and make the necessary deposit of the sum he may require, or mean to expend, and all the details of his journey are arranged for him. His place by railways and by steamers is secured and fare paid. His passports are taken out *vises en route*, wherever necessary, and his luggage taken care of, passed, re-adjusted whenever requisite, under superintendence of special agents, to whom his circular note is sufficient index, supposing no counterpart of advice. His quarters are provided wherever he may choose to stop at the hotel of correspondence. His bills are paid, and what money he may want, furnished to him. All these conveniences and ease are secured to him, on presentation of the circular note of credit issued to him at the place of departure. The check upon the circular bill of credit is kept of course by a regular mutual course of communication between all points, ending with the board of management in chief, as well as, probably, by a series of endorsements for moneys paid and advanced on account at each place of stoppage. Such, as reported, are the principal outlines of this undertaking, by which a system of paper values promise to be vastly extended (not introduced) over a great part of Europe, where upon the lesser scale, of bank circular notes, it indeed already circulates, without offering, however, anything like the accommodation, or being available for the uses and objects here held out. The necessity for specie or hard money will be materially diminished, by the fact, that people may traverse one-half of Europe freely, with scarcely the obligation of carrying a piece of metallic money, or a bank note. It is not improbable that the conveyance of packages and parcels may be mutually arranged for between the members of the company, by a somewhat similar system of exchanging of orders, to be liquidated by balances as at the banker's clearing house, where £100 coin or notes, is found equal to settle or balance for an aggregate mass of, perhaps, £50,000 of bills variously held for parties for and against each other.

**Waterproofing for Railway Purposes with Vegetable Black.**—It is well known that carbon is a substance less liable to change, from the action of time than almost any other. We have proofs of this in fact, that piles have been found, after immersion for ages in river and morasses, as sound as when placed there, in consequence of having their outer surfaces charred; and in the beauty of the characters traced on the manuscripts discovered at Herculaneum, which are as perfect now as when



written, and of which the coloring matter is ascertained to be carbon. At the present day the most useful black pigments we have are modifications of carbon, more or less impure, and they are principally obtained by the condensation of smoke, generated by the imperfect combustion of substances containing large quantities of carbon: as tar, oil, rosin and the like. The carboniferous products of these are, however, considerably contaminated by foreign matter, which is gasified and passes over with the smoke. These impurities injure the durability of the carbon, and render it needful, in making it into paint, to add sugar of lead, or some similar substance, to act as a drier, and cause the paint to harden. In the case of carbon made from wood, i.e. wood charcoal, the process of carbonizing being carried on at a red heat, the impurities are driven off, and a nearly pure article remains, of an indestructible nature and brilliant black appearance; but hitherto no means have been known of reducing this charcoal to a powder sufficiently fine to be made available for the purposes for which the smoke blacks have been used. The mode of doing so has now, however, been made the subject of a patent by Mr. Jones, of Chester, and the means he employs are these: The great obstacle to minute division of the particles of charcoal in the ordinary mills, arises from the elasticity of the material operated upon, and from the portions reduced to a sufficient state of fineness preventing the abrasion of the remainder, and no sieve is sufficiently fine to make the separation. Mr. Jones grinds his charcoal in a common mill, but causes a gentle current of air to pass through it, by which means as soon as the particles become fine enough to float on that current, they are carried away by it, and are allowed to deposit in a large chamber prepared to receive them. It is evident that the fineness of the powder thus obtained will be in inverse proportion to the strength of the current of the air, and thus any needful degree of minuteness in the atoms may be procured. The purity and fineness of the powder so prepared is such, that it only needs stirring into boiled oil to make at once a brilliant and durable paint.—*Railway Register.*

#### Railroad Advantages.

It has been found that the enormous amount of cattle, sheep, swine, etc., annually sent to, and consumed in, the city of London, can be forwarded by railway, at a great profit over the old system of "driving to market"—and the railroads are now being turned to advantage in this respect.

The following computation will give an idea of the immense amount saved (or gained) yearly by the adoption of the railway for conveyance.

The number of fat cattle annually sent to market is... 220,000—loss in driving... 8,800,000 lbs.  
Sheep... 1,250,000 " " ... 10,000,000 lbs.  
Swine... 550,000 " " ... 5,500,000 lbs.

Total..... 24,300,000 lbs.

"As the grazing districts," says an English paper, "are mostly in the north of England and Scotland, the average distance which these animals have been driven to market before the introduction of railways, was something over 100 miles. Long experience has demonstrated the fact that the loss in driving

beasts was equal to 40 pounds of beef per head; on sheep 8 pounds; on swine 10 pounds per head."

The time saved in sending these fattened animals to London by railway, instead of at the snail's pace on foot, is said to be more than an equivalent for the expense of their freight, so that the community really gains annually *twenty-four million three hundred thousand pounds of good meat for nothing*. In a market where meat is worth an average of ten cents a pound, and scarce at that, the saving can be regarded in no other light than as a great public blessing.

"The above," adds an exchange, "is only the beginning of blessings in the item of meat alone, which these iron ways are destined to confer on the denizens of the vast metropolis. The abominable nuisance of Smithfield market is at last to be abated.—Slaughtering establishments are going into successful operation in the country, on the lines of railways, so that the meat can be easily taken into the city, and the offal and other matters that should go to make most valuable manure, are left close to the broad acres that require fertilizing. The monopoly of Smithfield is soon to die, to the joy and gain of millions. The healthfulness of London will soon be greatly improved by cleansing it, and sending off on railroads the accumulated filth of ages. Thousands of shopkeepers, artisans, brokers, professional men, and others, are procuring residences for their families on the lines of the many railways, ten, twenty, or thirty miles out of the noise, dust, smoke and pestilence of the great Babel. One railway company is building a village of 800 dwellings at one of its depots. As the population of England increases rapidly, and especially that of London, we see no reason why the city may not one day cover half the island with its suburban villas.

Railroads in this country have as yet done very little in the way of bringing country people with their produce into cities to trade. The directors keep the fare so high that very few farmers can afford to send fat cattle, sheep or hogs by railway to market. The public interests are less than half served, even in the matter of travelling, by reason of the fact that comparatively but few men feel able to pay the prices charged for carrying them on these roads. An auspicious change will soon be made. The roads will be greatly improved and better adapted for carrying heavy trains. They will diminish their present rates one half and quadruple their business. A railway from this city extending to the head-waters of the Susquehanna will bring a large amount of trade from that extensive district. It will lessen the expense of living here, by increasing our supply of fuel, meat, butter and cheese, as well as adding largely to the customers of our merchants, mechanics and manufacturers. Our business men should remember the economical maxim of Dr. Franklin: "God helps those that help themselves." It is in the spirit of the sound business maxim, that the people of Buffalo have taken the stock of the Attica and Hornellsville railroad, with a determination to construct the same. If we will not aid in offering all needful facilities for the rural population of the surrounding country to come here to market, of course we must not complain when we see their most valuable custom go elsewhere, to add to the business, wealth and importance of other cities. If we do not help ourselves up in the world, who will help us up? The great value of railroads to a city is no longer an open question. See what Boston is gaining by them!

#### The Canada Railroad.

The railroad leading from Niagara river to Detroit, through Canada, is now about to commence in good earnest. Charles B. Stewart has been appointed chief engineer of location and survey; and will have the work prepared to put under contract early in the spring. With reference to the construction of a bridge over the Niagara river, which we now regard as a settled matter, the earnest now given that the Canada road is to be built, may be looked upon as a fortunate event upon both sides of the river. We notify those at a distance, who have distrusted the final consummation of the enterprise,

of the strong probability that by the 1st of July, 1848 they may pass over the Niagara river on a suspension bridge, and on to Detroit, over a well constructed railroad.—*Niagara Dem.*

#### Commerce of the World.

The Washington Union publishes an able article upon the subject of the tonnage and commerce of different nations—from which we take the following letter. One fact is gathered from the statements—which is of interest—to wit, that the mercantile marine of the United States is the *first* in point of tonnage, in the world.

FRANKFORT-ON-THÉ-MAIN, NOV. 30, 1846.

DEAR SIR:—I will now proceed to show the amount of commercial tonnage owned by the states of Europe and the United States of America, at the present time. I have derived the statements from the consuls and other representatives of the different countries, and in most instances, they may be regarded as entirely authentic:

Nation.	Amount of Tonnage.
Great Britain.....	3,000,000
France.....	590,000
Sweden and Norway.....	480,000
Holland.....	375,000
Prussia.....	325,000
Austria.....	210,000
Two Sicilies.....	208,000
Sardinia.....	170,000
Denmark.....	150,000
Greece.....	148,000
Turkey.....	180,000
Portugal.....	81,000
Spain.....	80,000
Bremen.....	60,000
Hamburg.....	57,500
Hanover and Oldenburg.....	57,000
Russia.....	51,000
Ionian Islands.....	49,000
Mecklinburg-Schwerin.....	46,000
Roman States.....	39,000
Tuscany.....	25,000
Belgium.....	28,000
Lucca.....	20,000
United States of America.....	2,400,000

Total..... 8,734,000

Of which the citizens of the United States, as is seen, own well nigh to three-eighths. Although the mercantile marine of Great Britain is apparently a fifth larger than ours, yet in reality, from the manner of measurement in the two countries, this inequality in size does not exist. In a report of a late Secretary of the Treasury to Congress, it was "respectfully recommended that the mode of ascertaining the tonnage of any ship or vessel, as directed by an act to regulate the collection of duties on imports and tonnage, approved 2d March, 1799," be so far altered and amended as to require that the actual depth of the ship or vessel be measured, that the breadth thereof be measured at every perpendicular foot at the broadest part above the main walls, that average of the breadth be made, and then that the length and breadth, as averaged, and depth as measured, be multiplied, with the deduction as directed by that act. This change has become important, because in modern times models of ships and vessels have been so altered as that the mensuration directed by that act does not approximate to the true tonnage, but makes it appear far less than the truth." Now, in support of the justness and correctness of these conclusions, I will state that in the movement of produce from the United States, in 1843, to a port in northern Europe, 107 foreign vessels carried 59,438,797 tons—thus averaging 555 tons; while 23 vessels, sailing under our flag, carried 16,483 tons; being 716 tons for each. This statement was made up under my own eye and direction; and I hazard nothing in stating that, according to the method of measuring ships in different countries, it would be found, upon examination, that in the aggregate, we do this proportion of the carrying by the tonnage which we have employed. It follows, then, that for practical purposes, our shipping is more effective than the shipping of Great Britain, or the shipping of all the remaining states of Europe, and that we have now, what I verily believe, the *first* mercantile navy on earth.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 405 Chestnut St., Philadelphia.

Saturday, January 23, 1847.

LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron Works*. Address

SAM'L KIMBER & CO.,  
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Philadelphia, Pa.

41f

NOTICE TO RAILROAD CONTRACTORS.

PROPOSALS will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.

For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

THOMAS WEST, President  
Boston and Maine Railroad.

January 22, 1847.

34d

The "Eureka."

We find, monthly, upon our exchange table, this excellently well-conducted quarto—published in N. York, and edited by Messrs. Kingsley and Pierson. The work is devoted to the discoveries of Science and the inventions in the Arts—and is altogether a handsome sheet, very creditably managed. Mechanics and manufacturers will find this work useful—as it is filled with matter concerning their interest, and warmly advocates their cause. We would cheerfully commend the "Eureka" to favorable notice, as a deserving periodical, and well worthy the favor of the public.

Liability of Owners.

We see it stated in the *Pittsburg Journals*, that a gentleman who was a passenger on board the steamboat (with his wife) at the time the late disaster occurred there, by explosion, has recovered \$1500 damages from the owners of the boat. It was shown in evidence that the gentleman was on board, and in consequence of the accident was detained some ten or eleven days, from the scalding and bruises he received. It was also proved that the boilers were old and unsafe, and the Judge charged in favor of the plaintiff. This decision and verdict is important. We learn, also, that Mr. Sylvanus Walker, who was injured by a collision of the cars upon the Western railroad, at Palmer, in August last, has recovered from the road \$1700. Too much care cannot be taken in the management of public conveyances; and these repeated verdicts in favor of the injured parties, must serve a salutary purpose, we should judge.

Plank Roads.

A correspondent of the Rochester American recommends in strong terms, the construction of a Plank road from that city to Lima, N. Y. He is in favor of thick planks and a double track. The opinion of Mr. Geddes, as our readers will recollect, is that on roads of ordinary travel a single track is sufficient. The correspondent considers some of the estimates made by Mr. Alvord, of Salina, recently published in this paper, too low. We suppose that this may be so, adds the editor of the American, as timber is somewhat more costly here than in Mr. Alvord's neighborhood. Nothing is known practically about the construction of plank roads in this section. We look for an exemplification of their expense, and their benefits in the one about to be built between Rochester and Henrietta. When that shall be completed, it is thought the citizens of Rush and Mendon and Lima, will find means to continue it. We trust the owners of property on that important route will see that the stock of the Henrietta road is speedily taken.

Lewiston and Waterville Road.

A correspondent of the Portland Advertiser says that a committee of the corporations of the Androscoggin and Kennebec railroad, chosen at Waterville for that purpose, have secured the services of an experienced, able and efficient man to superintend the laying out and construction of their road. The work is to commence as soon as it is ascertained that enough is subscribed to the books to grade the road through from Danville to Waterville.

It is believed that the subscriptions in the country are going forward with most successful despatch, and that their portion of the duty of raising the preliminary sum for organization is about accomplished. One of the towns in the interior—not the most wealthy or populous—has already given an actual subscription \$5000 higher than the estimate given for it at Waterville. It is hoped that Portland will complete her share forthwith, considering her facilities in having her population concentrated, and her deep interest in the enterprise. It is highly desirable that the company should be organized without the loss of a day.

An agent should be and is expected to be on the ground next week, to renew and perfect the surveys as far as possible before a fall of deep snow. The feeling among the stockholders is to have the work of grading the whole length of the line put under contract early in the spring.

Well Said.

"A seaport town, without a direct and ready intercourse and trade with the interior, is at best but a mere entrepot and fitting-out place for shipping."

So says the Salem Register, in reference to a road built from that city directly into the country to Andover and New Hampshire.

Besides the general and obvious correctness of the above remark, adds an exchange, it has a peculiar and fruitful meaning in reference to the improvement which the railroad brings to a seaport town. What is the slight effect of a railroad upon a commercial port, when it merely passes along the line of coast, from one point of commerce to another, as we see by the manifest examples of Portland and Portsmouth and Salem. A similarly small and comparatively unimportant result would display itself at Bath, and other places, where projected lines of road would only skirt the coast, parallel with present sea routes.

But let any town on the seaboard penetrate the interior directly by a railroad, then comes develop-

ment, growth, enlargement of existing resources and the creation of new facilities and new supplies both for town and country. Boston is the pre-eminent and rich example of this—an example so clear-so impressive, that all her neighboring cities have taken the hint. Salem, Providence, Portsmouth, and many others from Portland to New York, including both, desire and determine to imitate such an example. Nothing can be more legitimate or more promising on their part.

The Railroad Interest.

A resolution has passed the House in the Pennsylvania Legislature, instructing the committee of ways and means to report a bill, providing for offering at sale the canals and railroads owned by the Commonwealth, or such parts thereof as they may deem expedient. This may prove a very good move.—Companies, or individuals, can carry on business to better advantage, as a general principle, than states or governments.

It is stated in the telegraphic despatches of the N. York papers from Albany, that the commissioners to locate the New York and Erie railroad, reported to the New York Legislature, in favor of the route through Pennsylvania.

A meeting was held at Fulton, Oswego county, on Monday last, to take into consideration the propriety of co-operating with the inhabitants of other towns, in reference to the construction of a Plank Road from Oswego to Syracuse.

The Quebec Gazette—one of the oldest and best papers in Canada—says that the Atlantic and St. Lawrence railroad is fast progressing, and will, when completed, be one of the most important and profitable roads in the country—280 miles, and Portland is in connection with the lakes, grasping the whole western trade. It will go ahead, with rapid strides, of Boston, and will be the principal depot of the Atlantic steamers in a year or two. No city in the Union has the same natural advantages. New York is 475 miles from the Lakes—Boston 525.—Portland has a noble harbor; but three miles from the broad Atlantic. No pilots are required to enter or leave her port, and she will undoubtedly become one of the most important commercial cities in the Union. The Bostonians are not willing to believe that this road will be made, it is so dead against the city of Boston, which must keep wide awake or be beaten.

The Boston Traveller, alluding to the opening of the first section of the Northern railroad says, last Saturday was a gala day in a portion of N. Hampshire. It was the day on which the first section of the great Northern railroad was opened; a road which is destined to connect Boston, by way of Concord, N. H., with Burlington, Vt., and the lakes, Ogdensburg, and Western New York; and, as some of its most sanguine friends suggest, Boston with the Pacific ocean, the Sandwich Islands, Canton and Calcutta, by means of Whitney's grand Pacific railroad. And, however visionary this last suggestion may appear to some, it is scarcely less so than what we now witness would have appeared five and twenty years ago to us.

The Yankee Blade states that the contracts for the grading, etc., on the line of the Peterboro' railroad, from the Fitchburg road at Groton, to Townsend, was completed and signed by the parties on Thursday, and the work will be commenced on Monday or Tuesday next. The prospects of the company for the prosecution and completion of the work, are highly favorable, and no doubt can be entertained of a successful result. The gentlemen who have taken



the contract, we are assured, are competent and able to perform it with energy and promptness. The continuation of the route from Townsend to the line of the state at Mason, we presume, will be surveyed and located in the course of the coming Spring, as the New Hampshire company has now been organized, and will proceed in measures to forward the enterprise to Peterboro'.

It is gratifying to see, says the New Haven Palladium, the earnest but quiet manner in which the road to Boston has been projected and begun. We understand that Mr. Farnum, the engineer, contracted last week for five powerful locomotives, to be built immediately at the establishment of Ketchum, Grosvenor & Co., Paterson, N. J.

The Austrian government has just issued an ordinance, declaring that every engine driver on the railroads of the state, who shall have for the space of one year, performed his duties without having caused any accident, shall be entitled to a reward of 100 florins.

The earnings of the Erie railroad for the month of December, 1846, were as follows:

From freight .....	\$10,930 42
From passengers and mail .....	5,053 99
	<b>\$15,974 42</b>
For the same month in 1845 .....	14,130 54
Excess over 1845 .....	<b>\$1,743 78</b>

The Essex, Mass., railroad is fast approaching completion, as far as South Danvers, says the Danvers Courier, but little progress seems to be made on that part of the road from the village of North Danvers. At the entrance of the tunnel in Salem, the workmen are busily engaged in removing the wall by which the connection may be made with the Eastern railroad. Satisfactory arrangements on account of damages having been made with the proprietor of the wharf at North Bridge, the road has been extended over it, and only requires the filling up of the embankment between that place and the Aqueduct point, to enable the locomotive and cars to pass over the road into the Salem depot.

#### Melange of Items.

The largest merchantman ever built in New York city, was launched last week, amid the shouts of the multitude and the discharge of cannon. She was named the Constitution, is a three-decker, and her capacity is said to be from 1500 to 1900 tons.—Her length on deck is 189 feet; breadth 40 feet; and her depth of hold 30 feet. The mainmast is 93 feet, and to the top of the pole is 195½ feet.

A committee of colliery owners and brewers in the counties of Durham and Northumberland, Eng., have commenced a subscription for the purpose of presenting testimonials to Dr. Clanny of Sunderland, as the first inventor of the "safety lamp."

A train of 55 carriages, headed by 5 of the best engines, containing 2500 passengers, made an excursion from Glossop to Sheffield a short time since.

One of the best kinds of composition that can be prepared, says an exchange, to relieve carriage wheels and machinery from friction, is composed of hog's lard, wheat flour and black lead (plumbago.) The lard is to be melted over a gentle fire, and the other ingredients—equal in weight—may be added, till the composition is brought to a consistency of common paste, without raising the heat near the boiling point. One trial of this paste will satisfy any of its superior utility.

The Sun states that the Baltimore and Ohio railroad company have an engine of 25 tons, which

takes a train of empty cars up the Maryland mining company's road to Frostburg, nine miles from Cumberland, (having an ascent of 130 feet per mile, the steepest railroad in the country)—and brings down a train of coal. On the 20th December, there was a fall of snow two feet deep on a level, and much drifted. Their heavy engines, with a newly constructed snow plough that cost only \$40, took the cars up this steep road through drifts of snow eight and nine feet deep; thus showing triumphantly the capacity of railroads for winter service.

The number of passengers between the east and west is said to be about 800,000 annually. Of this number last year 280,000 were carried on the Baltimore and Ohio railroad, and 56,000 by the Philadelphia and Columbia railroad.

A mine of silver ore has been discovered in Dubois county, Ia., and a company are erecting a furnace for the purpose of working it. Forty tons of Missouri pig iron were taken to St. Louis the other day in a keel boat from St. Genevieve, the product of the great iron mountain of that state.

The Manhattan gas company, New York, says the Express, have lately erected on Eighteenth street, between Ninth and Tenth Avenue, a new building, 188 feet long, 92 wide and 48 high. The structure is of brick, and supposed to be the largest of the kind any where. It contains two tanks, each 84½ feet diameter, and each containing 860,000 gallons. The gas holders are placed in these tanks; they are 83 feet in diameter and 40 high, will store 400,000 cubic feet of gas, and weigh about 50 tons. When this company was incorporated it was looked upon as a bubble, but the stock was taken and the works put into operation, and it is now regarded as very important. The demand for gas in that section of New York is very great, and on the increase. The quantities manufactured are:

In 1843—17,950,000 cubic feet of gas.
In 1844—22,750,000 " "
In 1845—29,560,000 " "
In 1846—37,000,000 " "

The Telegraph continues to attract much attention in the west. The Cincinnati Gazette states that a public meeting was held at the Exchange Room on Monday night, to take into consideration the propriety of connecting that city by telegraphic communication with the eastern cities and New Orleans. The Chamber of Commerce resolved it expedient to organize a company to construct such a line; and that suitable trustees ought to be named to take such steps as might be necessary to form such a company and put it in operation. The Chamber expressed a deep interest in the enterprise, and declared its intention to cordially extend its aid and influence in prosecuting it.

The Portland company, for the construction of locomotives and the rolling of railroad iron, have a strong gang at work grading their grounds, and they intend to put up part of their shops this winter. Messrs. Staples & Bartel have also just added a large machine shop to their foundry in Portland, and will now be able to turn out almost any kind and any amount of iron work, such as boilers, engines, machinery, etc., and on as favorable terms as at any other place, remarks the Advertiser. The prospective establishment of the St. Lawrence and Atlantic railroad has given a very great impetus to the business prospects of Portland, and the journals of that city speak in glowing terms of the prosperity of the place.

A correspondence between Col. Robinson, President of the Pittsburg and Connellsville road, and Mr. McLane, President of the Baltimore and Ohio

railway, is published in the Baltimore papers. The Pittsburg company presses an early decision on the question of connecting the Baltimore road with the Ohio and Pittsburg. The Baltimore company object that the decision is pressed at too early a period, and without securing to the Baltimore company the contract necessary to prevent a connection of the Philadelphia road with the Connellsville road, and in that way diverting the travel to Philadelphia, to the injury of the Baltimore company. Mr. McLane is firm, though temperate in his language, and is evidently indisposed to change the course of the Baltimore company, to accommodate the Pittsburgers. He intimates, that a connection of the Baltimore road at a point lower down the Ohio than Pittsburg would be more advantageous to the interests of Baltimore, and expresses the opinion that the difficulties in Virginia, in the way of such connection, are not so great as formerly, and may be overcome.

The common council of Norfolk have held a session, since the recent fire at that place, at which a committee was raised, with instructions to purchase three new engines with suitable apparatus, etc., and with further instructions to devise and report such a reorganization of the fire department as shall insure its future efficiency.

There are contracts enough now issued in the ship yards of Kensington, Philadelphia, to give constant employment to all the shipwrights in that district for the next six months.

The subscription for a cotton factory at Augusta, has been filled, exceeding \$100,000. That is the way to carry on the contest with the north amicably and efficiently.

The Albany Argus says that the increase of tolls on the New York canals for 1846, over that of 1845, will not vary much from \$109,000. On the canals of Ohio, the increase for 1846 over the receipts of 1845, are rising \$128,000.

#### Railroad Convention. Sunbury and Erie Railroad.

A very large Meeting of Delegates to the Convention in this city, pursuant to previous notice, was held at the FRANKLIN HOUSE, on Tuesday last. A preliminary organization took place at 11 o'clock, A. M., at which GEN. WM. F. PACKER, of Lycoming, was elected as *Chairman*, and Messrs J. Camp, of Erie county, and H. B. Mason, of Northumberland county, acted as *Secretaries*. After some suggestions and recommendations in reference to the time and place of holding their meetings, a resolution was adopted, and a committee appointed to call upon the city papers, and propose the publication of the proceedings of the Convention in full. A member of the Convention subsequently informed the meeting that the Chinese Museum could be had for the further sittings of this body, which, upon motion, was adopted, and the meeting adjourned to that place, where they afterwards held their meetings.

Upon the opening of the meeting in the evening, at the Museum, the committee, to whom was referred the subject, reported the following named gentlemen as officers of this Convention:

*President*—HON. J. L. GILLIS, of Ridgway, *Ell county*.

*For Vice Presidents*—John Tucker, of Philadelphia; Hon. Thomas Burnside, of Centre county; Gen. George M. Keim, of Berks county; Dr. Phineas Jenks, of Bucks county; M. R. Moore, of Montgomery county; Major John C. Lessig, of Schuylkill county; Joseph R. Priestly, of Northampton county; Dr. W. H. Magill, of Columbia county; James Moore, of Union county; George White, of Lycoming county; J. P. McElrath, of



Clinton county; Lewis Bensenger, of Elk county; Wm. Keating, of McKean county; Dr. Wm. A. Irvin, of Warren county; and Irwin Camp, of Erie county.

*For Secretaries*—Walter R. Johnson, of Philadelphia; H. B. Masser, of Northumberland county; Benj. H. Cummings, of Schuylkill county; Mr. Sanburn, of Erie county; John S. Richards, of Berks county.

The President, upon taking the chair, made an appropriate speech, in which he stated the objects of this Convention, and concluded by remarking that,

"Great misconceptions and misunderstandings prevail in this city and elsewhere, in regard to the most eligible route for a railroad from the Delaware to the Ohio and Lake Erie. I believe that these errors can be removed by a fair and candid presentation of the facts necessary for the formation of a proper and enlightened judgment on the subject.

"This is our present purpose; we come from various quarters of the Commonwealth, and although we all have our local feelings, yet we think we can prove the policy of the route we advocate by facts cogent and powerful. Gentlemen, I again thank you for the honor conferred upon me, and trust that our proceedings will be marked with harmony."

The following resolution, offered by Judge Palmer, of Pottsville, passed unanimously:

Resolved, That the cordial thanks of this Convention are due, and hereby tendered to Mr. D. K. Minor, Proprietor of the FRANKLIN HOUSE, Chestnut street, for the liberality and kindness extended to the convention, in the use of his House.

After a few speeches, *pro* and *con*., a resolution was offered and passed, to invite the citizens of Philadelphia to attend the sittings of this Convention. The meeting then adjourned to Wednesday morning.

The Convention was addressed by several gentlemen, in an able and interesting manner—and in the course of their remarks, all the advantages of the Sunbury and Erie route were presented, and the speakers offered many able arguments and much valuable information, in reference to the trade of the country through which it may be proposed to carry this road. Mr. Joseph M. Sanderson delivered a long and well written address upon the subject, which contained numerous statistics of a highly interesting nature.

At the Evening Session on Wednesday, immediately after the call to order by the President—Mr. Hegins, the Chairman of the Committee on Resolutions, submitted the following for the consideration of the Convention:

Resolved, That the convention of delegates from 15 counties of Eastern, Northern and Western Pennsylvania, have met for the single purpose of appealing to the sober judgment of their fellow citizens throughout the commonwealth, in behalf of an improvement which has long been neglected and which they believe to be entitled to the most favorable consideration.

Resolved, That they are satisfied that the West Branch of the Susquehanna, is the route by which a railway communication between Eastern and Western Pennsylvania can best be made; and the only one by means of which Lake Erie and the Ohio river can with equal facility be reached.

Resolved, That for the promotion of the general interest, the West Branch route is, in their judgment, preferable, as it involves no conflict with the State improvements, which it is well to remember are not yet paid for, and whose income has been pledged to the public creditors, we, as citizens of a commu-

nity anxious to pay our honest debts, have no right to trifle with.

Resolved, That for the promotion of their own interests, as well as the country through which it passes, as the extreme points, and especially of Philadelphia, the West Branch route is preferable as benefiting a part of the country of peculiar, though undeveloped, resources. And in relation to Philadelphia by terminating at a point accessible by an extension of improvements by railroad and canal, through which, without fear of a successful rival, the trade of the west can be brought to Philadelphia.

Resolved, That we desire especially to call public attention to the importance and value of the trade of the great lakes, and as a means of commending it, to the peculiar control over it which Pennsylvania has in the harbor of Erie, the best, if not the only harbor on the southern shore—a harbor which Pennsylvania was once wise enough to purchase at great cost, which rival states are now seeking to secure, and which only the citizens of Eastern Pennsylvania seem disposed most inconsiderably to undervalue.

Resolved, That we earnestly remonstrate against that plan of improvement, founded, as we believe, on the most mistaken policy, which proposes to make a point within a neighboring state, such as Cleveland, the western termination of the Pennsylvania works, and to pass by neglected and condemned, our own Lake Harbor of Erie, leaving to the citizens of North-western Pennsylvania, the poor consolation of a desperate hope that after millions shall be spent to build up a foreign city, a remnant of generosity may do something for ourselves.

Resolved, That this convention has no wish to place itself in an adverse attitude to the enterprise known generally as the Central railroad; in support of which, much spirit in certain sections of the state has been aroused, but is content to utter a word of respectful, but earnest warning against any design, under any pretext, or by reason of any supposed necessity, to adopt a route which precludes the claims and rights of North-western Pennsylvania, and renders hopeless the just expectations of citizens.

Resolved, That we will gladly unite with the friends of the Pennsylvania railroad in procuring such a modification of their charter, as to enable them to select with entire freedom, the best route between eastern and western waters, with no other limitation or restriction, than fixing its termini in the east at Philadelphia, and in the west on the Ohio at Pittsburgh, and the lake at the harbor of Erie, thus leaving the wide area of the state from its southern to its northern limit, open for free, disinterested and impartial exploration.

Resolved, That this convention, representing a large and intelligent part of the population of the state, renew to their friends in other sections, who merely differ from them in choice of routes, the expression of a desire of friendly consultation and co-operation, offering to them aid in removing obstacles to success, and asking in return a fair hearing,

and the exercise of disinterested judgment and of patriotic impulses, having no other object than the promotion of the general welfare of the state, and the prosperity of its great metropolis.

Resolved, That the resolutions, signed by the officers of the convention, be communicated to both houses of the Legislature and that they be printed.

These resolves caused a spirited debate, which continued to the adjournment of the meeting on Wednesday, without their adoption. On Thursday morning the Convention re-assembled—and the Resolutions were finally passed, after being amended and modified to read as we have given them above.

At the subsequent meeting of the Convention—several speeches were offered, and the whole subject was fairly discussed, until Thursday evening—when the Convention, after passing a vote of thanks to its officers, and a resolution that the City and State be requested to print the proceedings of the Convention, together with the Addresses of Messrs. Packard and Randall—adjourned *sine die*.

We may add that the Delegates evinced a commendable spirit throughout their deliberations, and we doubt not that an important impression upon the public mind, in reference to this subject, will be the result.

#### Niagara Suspension Bridge.

The subscription to the capital stock of the suspension bridge, at Niagara Falls, has been commenced—and it is in contemplation to begin the work early next spring. The charter is now complete—having received the sanction of the legislature of New York, and the same having been signed by the Queen. The bridge, when completed, will without doubt, prove a monument of art and utility.

The editor of the Rochester American has been shown by Mr. Stuart, (one of the commissioners) a plan of the structure, which is described as follows:—

"The plan, designed by Mr. Stuart—is to consist of suspension wire cables and a substantial cast iron arch combined. This plan would, it is thought, secure in an eminent degree the unyielding stability which is especially desirable in a bridge over which railroad trains are to pass. The span of the arch and cables should be only 450 feet."

The editor of the American remarks;—

"We have not time at present to describe this design in detail, but it appears admirably calculated to answer the desired ends. Plans are also in preparation by Charles Ellet, Jr. Esq., of Philadelphia, John A. Roebling, Esq. of Pittsburg, and other engineers of distinction. That one will be eventually adopted which the directors shall deem best. We have never doubted the entire feasibility of this enterprise, and we rejoice to learn that its early accomplishment is probable.

"Although few suspension bridges have as yet been built in this country, their merits have been successfully tested in Europe. We perceive that in various parts of the Union they are beginning to attract attention. In 1842, Mr. Ellet erected a bridge of this description across the Schuylkill at Philadelphia, which has proved entirely satisfactory, and Mr. Roebling has built an aqueduct and a bridge on the same principle at Pittsburg. We learn that it is in contemplation to construct a suspension bridge across the Ohio river at Cincinnati, and have lately seen a description and drawing of this vast proposed work by Mr. Roebling, of which we design to speak more particularly at an early opportunity.

Having recently understood that reports prejudicial to the stability of the suspension bridge over the Schuylkill were to some extent in circulation,

we have taken the trouble to inquire into their truth, and are pleased to learn that they have no foundation. We have seen a private letter under date of the 37th ult. from Mr. Ellet, the engineer who projected and built the bridge, from which we make the following extract:

"My bridge, you may rest assured, has never yielded a particle since the day it was finished, and continues to give entire satisfaction."

"We have equally satisfactory accounts of the suspension structures erected at Pittsburg by Mr. Roebling, and we trust and expect that an additional distinguished exemplification of the utility of suspension bridges will soon be presented at Niagara Falls."

#### Macon and Western (Georgia,) Railroad. First Annual Report.

We have received the first annual report of this company. It shows a very favorable state of things. The company was organized only on the 6th of January, 1846; and the entire road was relaid, and the machinery put upon it, before the 1st of October—or in less than nine months; a result which shows what may be done by business men, with a fair field before them.

The success of the first three months' operations on this road is hardly a fair specimen of what may be looked for hereafter.

This road was purchased on the 6th day of January last, and since that time, timber has been provided to rebuild the entire track, and the work completed, so that the road was opened its whole length from Macon to Atlanta, one hundred and one miles, on the 4th day of September, and a regular freight and passenger business commenced on the 1st of October.

Since the 6th of January last, new and permanent depots and water stations have been erected on the whole line. A machine shop for the repair of engines, and a car factory, provided with the most approved and ample machinery, have been established.—Five new first class engines, four new passenger cars, two second class passenger cars, forty-eight eight-wheeled freight cars, have been provided and placed on the road; in fine, a new road, with the most approved machinery, has been constructed and put into operation since the 6th day of January last, and has been doing a regular freight and passenger business since the 1st day of October.

Below will be found an estimate of the cost of the road, machinery, etc., as made in November, 1845, and also the actual cost as appears on the treasurer's books.

The original estimate was to be credited with all the old iron, etc., which might remain after the construction of the road, which is as follows:

Tons.		
273	plate rail 2½ x 7-16, worth \$10.....	\$10,920
74	old wheels and other castings, a 20.....	1,480
20	broken plate rail, a 30.....	600
10	old axles, a 40.....	409
23	scrap iron, a 35.....	770

It will be seen that the principal under estimate is in timber, iron and spikes, the former arising from the fact, that it was judged advisable to exclude all the old timber from the new track, and 1331 tons of new iron, and 1906 casks of spikes were purchased, instead of 1200 tons of iron and 1000 casks of spikes, as originally estimated.

It is believed the interest of the company has been consulted in these changes, and that

full remuneration for the additional cost will be found in the reduced expenses of keeping the road in repair.

Estimate.	Cost.	Above estimate.	Below estimate.
Original purchase money.....	\$155,100 00		
5 new locomotives.....	40,000 00	36,042 19	3,957 81
3 new passenger cars.....	8,000 00	8,511 96	511 95
3 new second-class cars.....	8,000 00	1,827 60	6,172 40
48 8-wheeled freight cars.....	23,750 00	35,009 82	1,259 82
5 new turning tables.....	6,000 00	4,183 71	1,816 29
Machinery for car & machine shop, depot buildings and water stations.....	30,000 00	26,483 95	3,517 05
Grading, laying and filling track.....	60,855 00	62,257 29	1,402 29
Timber for 101 miles track.....	64,969 00	83,140 09	18,171 09
1331 tons of iron & chairs.....	108,000 00	122,216 36	14,216 36
1006 casks of spikes.....	5,000 00	11,260 49	6,260 49
Engineering contingencies, etc., etc.....	25,000 00	13,019 45	11,980 55
Real estate.....	1,226 41	1,226 41	
Office expenses.....	5,370 35	5,370 35	
Incidentals.....	7,644 94	7,644 94	
Salaries.....	536,674 00	573,732 76	37,058 76
			\$22,371 70

The receipts of the road from the 1st Oct. to the 31st Dec., inclusive, are as follows:

	Freight.	Passengers.	Mails.	Total.
October.....	7,411 87..	3,375 73..	494 70..	11,112 29
November 6, 128 30..	2,786 66..	411 00..		9,325 96
December 7,461 75..	4,306 59..	434 70..		12,102 04
	20,956 03..	10,312 96..	1,360 40..	32,540 29

Gross expenses for three months ending 31st December.....\$14,060 51  
Deduct inventory materials on hand.....3,299 45

Net expenses for three months ending 31st December.....10,761 06

Net earnings for three months ending 31st December.....\$21,779 23

N.B. As portions of the road have been run over by timber and other trains since 4th of July, the earnings and expenses to the 1st of October have been carried to debt and credit of timber.

In concluding this report, the directors take great pleasure in stating to the stockholders, that the road has been constructed in a most substantial manner; that the engines, cars, machinery, etc., are of the newest and best construction; that the connection with the Central, Georgia and State roads, forming a line of 595 miles of railroad within the State of Georgia, insures a steadily increasing business. That the road from Macon to Barnesville, 40 miles, forms a part of the mail route from Savannah to Columbus. The portion from Griffin to Atlanta, 43 miles, forms a part of the great mail route from Charleston to New Orleans; that the road bed running along the ridge that divides the waters of the Gulf of Mexico and the Atlantic, is without a bridge on its whole length, 101 miles. As fuel and labor are cheap, the expenses of this road will be less than any other of the same length in the U. States; and the directors, in concluding, have much satisfaction in remarking, that judging

from the result of the three months, and the very encouraging prospect of an increasing business, that the net revenue will fully equal representations made, and give entire satisfaction to shareholders.

By order of the board of directors,  
DANIEL TYLER, President.  
Macon, January 1st, 1847.

MACON AND WESTERN RAILROAD,  
Macon, January 1st, 1847.

Herewith I submit a condensed statement of the actual cash receipts and expenditures by this company, from its organization on the 6th day of January last, to this date.

This statement exhibits also the sources, under distinct heads, from which the monies have been received, and the general purposes for which they have been expended.

By the original plan of organization, adopted before the formation of the company, the first instalment on capital stock, amounting to \$27 10 per share, was paid to the committee appointed by the corporators to perfect the organization of the company under the new charter granted by the Legislature of Georgia, at their last session.

By the report of this committee made in January last, it appears they have received on account of capital stock, the sum of \$260,923 00, and that out of this sum they had paid on account of the purchase money of the road, its fixtures and equipments,

The sum of.....\$145,566 38  
And had transferred the balance to the treasurer.....115,356 62

Assuming, however, for the purpose of presenting the receipts and expenditures in one view, that the whole sum paid in on capital stock, was received by the treasurer, and expended by him, the cash account will stand as follows:

TREASURER'S ACCOUNT.		December 31st, 1846.
Dr.	Capital Stock.	
Cash received on 9130 shares a \$46 27		\$422,445 10
" " 1500 " a 29 17		43,755 00
" " 1500 " a 29 17		637 50
" " 600 " a 29 17		2,749 50
" " 950 " a 46 27		43,956 50
" " 500 " a 46 27		23,135 00
		\$536,678 60
Premium and interest.....		5,294 05
Passenger earnings.....		16,448 39
Mail earnings.....		1,230 00
Freight earnings.....		19,978 79
Old engines, iron, etc.....		2,111 90
D. Tyler.....		20,000 00
A. Boody.....		84 40
D. Tyler.....		172 96
E. Foote.....		451 30
		\$602,450 39
Cr.		
Paid in full of purchase money.....		155,100 00
Construction Account (as per detailed statement.....)		389,877 82
Road bed and superstructure: timber, iron locomotives, depot buildings, cars, engineering, salary, etc.....		
Running expenses.....		
Freight and Passenger expenses....		19,156 59
Fuel, re's of road, cars, engines, etc., F. S. Smith and others, small balances		90 08
Cash on hand.....		38,225 96
		\$602,450 39

J. G. FORBES Treasurer.



MACON, January 1st, 1847

We the undersigned forming the standing committee on accounts, do hereby certify, that we have made monthly examinations of the vouchers of the treasurer, from the 6th day of January last, to this date, and compared the same with the cash book entries, and find the said vouchers to correspond with said entries. (Signed)

N. C. Munroe, Charles Day, Washington Poe, C. J. McDonald—Committee.

#### STATE OF THE COMPANY.

January 1st, 1847.

<b>Cash Resources.</b>	
Bills receivable and interest.....	\$59,410 68
Reserved shares.....	51,994 34
Cash on hand.....	38,225 96
Old iron, etc.....	14,170
Sundry debts.....	585 12
Freight earnings.....	4,623 60
Passenger earnings.....	376 01
Mail.....	1,250
Claims on the Monroe Railroad and Banking Company.....	12,000
	<b>\$182,625 71</b>
<b>Liabilities.</b>	
Bills payable.....	51,771 35
Sundry debts.....	12,018 61
	<b>63,790 56</b>
Balance cash resources....	<b>\$118,835 15</b>

The resources in the above statement, are believed to be all good and available, at the amounts therein set down.

The only item about which any doubt exists, is the estimate upon the claims against the late Monroe Railroad and Banking Company.

These claims were assigned to this company by Robert Collins and John D. Gray & Co., in January last, and amounted at the date of the transfer, to the sum of \$100,000.

A fund has been created by the sale of the old road and the other property and assets, belonging to that corporation for the payment of its debts, and which fund it is understood, now amounts to a sum exceeding \$140,000.

This company is entitled to a proportionate part of the fund, by virtue of the above specified claims. But it is impossible to state what amount of dividend will be received, as the sum may be materially increased or reduced by the rejection or admission of the numerous other claims presented.

It may, however, from present appearances, be fairly presumed that the amount to be realized from this source, will not fall short of \$12,000 and will probably reach \$15,000.

J. G. FORBES, Treasurer.

At a meeting of the Directors of the Macon and Western Railroad Company, held at the company's office in Macon, on the 5th day of January, 1847—present

DANIEL TYLER, President.

Directors.—C. J. McDonald, N. C. Munroe, J. G. Forbes, Washington Poe, Charles Day.

The annual reports of the Directors and Treasurer having been read and approved, and directed to be published, it was

Resolved, That a return be made to the stockholders on the 1st day of February next, of \$5 07 on each and every share, out of the surplus remaining after the completion of the road, fixtures and equipments; and also a di-

vidend of \$1 33 per share, out of the net earnings of the road, for three months ending on the 31st December, 1846, and that the Treasurer publish the necessary notices.

J. G. FORBES, Secretary.

The following is a list of the DIRECTORS of the company:

Daniel Tyler, President, Norwich, Conn.; J. G. Forbes, Treasurer, Syracuse, N. Y.; Nathan C. Munroe, Charles Day, Washington Poe, Macon; Charles J. McDonald, Marietta, Geo.; Andrew Low, Jr., Savannah, Geo.; Ker Boyce, Charleston, S. C.; Edward Whitehouse, Theodore Dehon, Adolf Rodewald, New York; Azariah Booddy, Springfield, Mass.; Rufus H. King, Albany, N. Y.

#### The Central Railroad.

The North American says that the subscriptions to the stock of the Central railroad are steadily, if not rapidly progressing, and we learn from the commissioners that a much better feeling exists in relation to the subject than at any time previously. Quite a number of the banks and insurance companies have come forward during the past week, and subscribed liberally, but by far the greater portion of the stock is held by individuals.—The whole number of shares now subscribed amount to 24,400, and it is necessary, before the city, by virtue of the late ordinance, subscribes to the amount of \$1,500,000, that 5,600 shares further should be taken, which we have little doubt will be the case in the course of a fortnight at the farthest, thus securing the \$3,000,000 required to be subscribed before the organization of the company. Our citizens will thus see the importance of one more vigorous movement—one effort, which to their united energies is, as nothing, and this accomplished, by far the greatest obstacles in the way of this important project will have been overcome.

It is impossible to conceive how great an impulse would be given to the trade of our city had we a continuous railway communication with the lakes. We have been almost astounded when looking at the enormous quantities of produce from the west, seeking an outlet through the New York canals; yet were the Pennsylvania road extended to Pittsburg, and a railroad constructed between that city and Cleveland, (as there will be by the time our road is finished) this immense amount of produce would take a different route, and instead of passing through the N. York canals would come hither. With what success we could compete with all other lines for the lake trade, the annexed table will show, prepared as it is from accurate data, and showing the cost per barrel for transporting flour from the west to the sea board:

From Cleveland to Philadelphia,	54c. per bbl.
From Cleveland to Baltimore,	64c. "
From Cleveland to New York,	79c. "
From Cincinnati to Philadelphia,	79c. "
From Cincinnati to Baltimore,	87c. "
From Cincinnati to New York,	107c. "
From Cincinnati to New York, by river and sea via New Orleans,	114c. "
From Cleveland to N. York, by lake and canal,	90c. "

Against the progress of a line of communication possessing such advantages, no ob-

stacles, no matter how great, can long prevail.

#### Great Pacific Railroad.

The following particulars in relation to this scheme, we copy from a late number of the Philadelphia Ledger.

In 1803, Mr. Jefferson, then President, sent Captains Lewis and Clarke, with a party of soldiers, to explore the country from the Mississippi river, along the Missouri, to the Pacific ocean. Even then Mr. Jefferson, with that foresight which enabled him to look far over the heads of his cotemporaries, to the immense importance of Louisiana to the Union, perceived, across this continent, up the Missouri and down the Columbia, the shortest avenue to the trade of China and India, that source of wealth which had successively raised empires, and for which the Caucasian race had been contending for more than three, perhaps for ten thousand years. Railroads were then unknown. And had they never been invented, the avenue foreseen by Mr. Jefferson, and for whose exploration he sent the expedition commanded by Lewis and Clarke, would have been destined hereafter to this trade. But if the navigation of these rivers is to be superseded by railroads, and a more direct and permanently open route is thus to be obtained, the superiority of Mr. Jefferson over his opposing cotemporaries in statesmanlike foresight, is not the less conspicuous; and the exploration of Lewis and Clarke have been the basis of all subsequent examinations of the country between the Mississippi and the Pacific.

The route proposed by Mr. Whitney for his railroad, proceeds from Lake Michigan, across the Mississippi above the mouth of the Wisconsin, thence across the Missouri above the mouth of the Great Platte, between the Council Bluffs and the Great Bend, a little below lat. 43, and thence to the Great South Pass, about lat. 42 30, and thence along the valley of Lewis' river, which is the southern main branch of the Columbia, to the head of ship navigation upon the latter, or to the bay of St. Francisco, as may hereafter be decided. Taking the Great South Pass as a point of departure eastward and westward, our first object is to ascertain the respective distances and elevations. According to Col. Fremont, quoted in the report of Senator Breese, the elevation of the highest point in this Pass, above the Gulf of Mexico, is 7490 feet. Col. Fremont, who explored the valley of the Great Platte, from its mouth to this Pass, in 1842, describes it as an open Prairie region, with an ascent almost or quite imperceptible by the traveller. He was accompanied by a Mr. Carson, who had resided in that region for 17 years, who had frequently crossed the Pass, and was thoroughly acquainted with the route. Yet, with all his experience, he was obliged to watch very closely, to ascertain when he had reached the culminating point of the Pass through the Rocky mountains. The distance of the Great Pass to the mouth of the Kansas, is 962 miles, and from the mouth of the Platte, 882, the latter being about 300 miles higher on the Missouri than

the former; and as the mouth of the Kansas is 700 feet above the Gulf of Mexico, and that of the Platte a trifle more, the average ascent from either point to the Pass, is only about 7 feet to the mile. And as the distance from Lake Michigan to the Pass is 1400 miles, and that between the lake and the mouth of the Kansas or Platte a level country, the average ascent from the lake to the Pass does not exceed  $4\frac{1}{2}$  feet to the mile. According to Col. Fremont, the mouth of the Kansas is 700 feet above the Gulf; the crossing of the Republican Fork, 516 miles farther, is 2300 feet, giving an ascent of  $4\frac{1}{2}$  feet to the mile; the ascent of the next 128 miles is 1000 feet, or about 8 to the mile; that of the next 107 miles, to St. Vrain's Fort, is 1000 feet, or 9 to the mile; that of the next 80 is 1300 feet, or 16 to the mile; that of the next 18 miles is 800 feet, or about 42 to the mile; that of the next 87 miles is 200 feet, or  $2\frac{1}{4}$  to the mile.

The distance from the Great Pass to the mouth of the Columbia, by the common travelling route is 1400 miles, and to the head of its ship navigation about 1230; and as the elevation of the Pass is 7490 feet, the descent from this point to ship navigation gives an average of about 6 feet to the mile. From the Pass to a distance of 311 miles, the descent is 1490 feet, or less than 5 to a mile.—For 234 miles more, the route is level. For 540 miles more, the surface is irregular, and the next 178 miles end at an elevation of 3000 feet; the descent from 6000 to 3000 feet, over a distance of 718 miles, giving an average of less than 3 feet, though that of the last 178 miles is 17 feet to the mile. From this point to the foot of the Blue mountains, 282 miles, the elevations and depressions give an average of  $10\frac{1}{4}$  feet to the mile; and the remaining distance to Fort Vancouver, the head of ship navigation, 303 miles, gives an average of  $3\frac{1}{4}$  feet. All these elevations were taken by Col. Fremont, over the route usually

travelled, though the committee suggests that future explorations will discover routes of less distances and ascents.

These facts show that in a distance of 2630 miles, from Lake Michigan to Fort Vancouver, the elevation of the Great South Pass, 7490 feet, and of the intermediate points, present no obstacles to a railroad.

#### NOTICE TO RAILROAD CONTRACTORS.

Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.

J. W. BROOKS, Supt. & Eng.

Detroit, January 5, 1847.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons  $2\frac{1}{2}$  x  $1\frac{1}{2}$  inch Flat Punched Rails, 20 ft. long. 25 "  $2\frac{1}{2}$  x  $1\frac{1}{2}$  " Flange Iron Rails. 75 "  $1\frac{1}{2}$  x  $1\frac{1}{2}$  " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [117] 68 Broad St., New York.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,

No. 139 Greenwich, corner of Cedar street.

September 18, 1846.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,

45 North Water St., Philadelphia,

or by their Agent, ROBT. NICHOLS,  
79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR**

the sale of

Codorus,

Glendon,

Spring M.d and

Valley.

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [174] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

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Supt Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CROOKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 31st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

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**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. McKee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.**

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 445 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT SPIKES.**

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 223 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

.. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**DAVENPORT & BRIDGES CONTINUE**

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Truth St., Philadelphia. 33rd

# ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs.; and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut, Philadelphia. 1y10 near Third, 60

## LAP-WELDED WROUGHT IRON TUBES

FOR TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works, Maryland. Dec. 25, 1y\*

## RAILROAD IRON.—THE "MONTGOMERY"

Rail Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

1y48

77 Pine St., New York.

## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

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## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 5

SATURDAY, JANUARY 30, 1847.

[WHOLE No. 554, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 9½ p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD and STAGES** connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.  
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½ and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 68 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky, Ohio.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April

1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown,

Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 4½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Sup't.

# TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 11 a.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

## TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

## TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

## BALTIMORE AND OHIO RAILROAD.

Great Western Mail leaves Baltimore every morning at 7 1/2 and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

## WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 1y49

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warrant equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

## NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 330 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

## TIME.

From Buffalo to Sandusky..... 24 hours. Leave Sandusky 5 a.m. to Columbus.... 14 " From Columbus to Cincinnati..... 15 " Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

## FARE.

From Buffalo to Sandusky, Cabin..... \$6 00 " " " Steerage..... 3 00 " Sandusky to Columbus..... 4 50 " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 86 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Supt., etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

## NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisiana, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiana only.

Leave City Hall for Harlem, Morrisiana, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

## RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35, 1 20, 5 05 and 6 p.m.

Leave Yorkville, at 6 19 a.m.; 4 35 and 6 15 p.m.

## SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

## BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m. Arrives at..... 9 a.m. and 6 1/2 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at..... 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at..... 8 a.m. and 2 p.m.

## FARE.

Fare to York..... \$1 50 " Wrightsville..... 2 00 " Columbia..... 2 12 1/2

Way points in proportion.

## PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9 Or via Lancaster by railroad..... 10 Through tickets to Harrisburg or Gettysburg... 3 In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at..... 5 1/2 p.m. Returning, leaves Owings' Mills at..... 7 a.m.

D. C. H. BORDLEY, Supt.

31 1y Ticket Office, 63 North St.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 3 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 1y

## SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily..... \$36 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. 1y25

JOHN KING, Jr. Agent.

## CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil)..... \$1 50 per barrel. On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.

On molasses and oil..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

y40 Gen'l. Supt. Transportation.

## MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tiller, etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2y19 1y



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles.  
Macon to Atlanta—Macon and Western.....101  
Atlanta to Oothcaloga—Western and Atlantic.. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta	To Oothcaloga
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOKTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa. 1y25

**GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 80 miles.	Between Charleston and Oothcaloga, 388 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TWO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; ear axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
E. cor. 19th and Market sts., Philad., Pa. 1y

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 9 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47½ W. H. CLEMENT, Sup't.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
Eng. and General Superintendent.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury fronting on and east of Parker street, containing 68,497 square feet, with the following building thereon standing.

Main brick building, 120 feet long, by 46 ft wide two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 ft two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 4 ft in calibre and 3 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

#### PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

281f

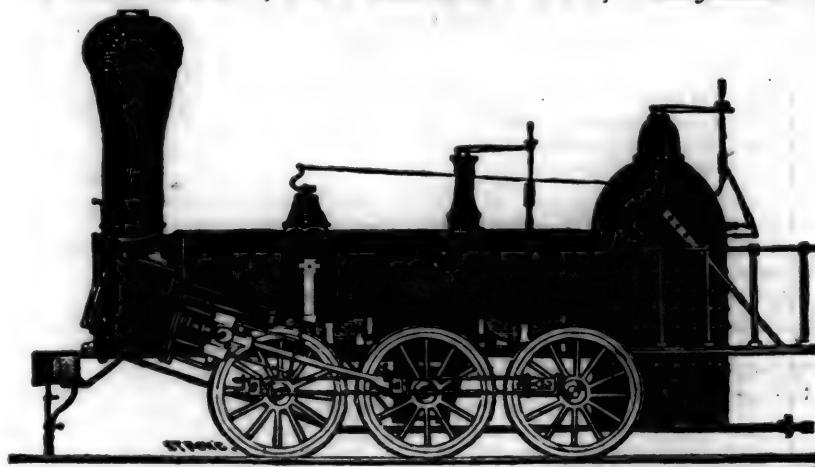
J. BALL & CO.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14 " " " " " "	× 24 " "
" 3,	14½ " " " " " "	× 20 " "
" 4,	12½ " " " " " "	× 20 " "
" 5,	11½ " " " " " "	× 20 " "
" 6,	10½ " " " " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

#### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,**  
345 President of the Newcastle Manuf. Co.

#### RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by **A. & G. RALSTON**  
Mar. 201f 4 South Front St., Philadelphia.

#### KEARNEY FRIE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 25





*Number of Miles run by Locomotives in Eleven Months of 1846.*

For passenger trains.....	215,369
For freight trains.....	313,359
For gravel trains, etc.....	45,328

Total number of miles.....573,956

*Schedule of Engines and Cars belonging to Western Railroad Corporation, November 30, 1846.*

Engines.	Built by
12 10 ton passenger,	Locks & Canals Co., Lowell.
5 15 ton passenger,	Hinkley & Drury, Boston.
1 15 ton passenger,	W. Norris & Co., Philada.
7 22 ton freight	R. Winans, Baltimore.
3 20 ton freight	Locks & Canals Co., Lowell.
6 20 ton freight	Hinkley & Drury, Boston.
1 16 ton freight	Hinkley & Drury, Boston.
1 20 ton freight	W. Norris & Co., Philada.
5 20 ton freight	Baldwin & Whitney, "
2 10 ton freight	R. Winans, Baltimore.

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*Cars.*

19 8 wheeled passenger, 1st class.
7 4 wheeled passenger, 1st class.
4 8 wheeled passenger, 2d class.
4 8 wheeled passenger, baggage.
2 4 wheeled passenger, baggage.
4 8 wheeled passenger, crate.
2 4 wheeled passenger, crate.
13 baggage crates.
448 8 wheeled covered freight.
65 8 wheeled platform.
100 4 wheeled covered.
70 gravel and dirt.
26 hand.

**CONSTRUCTION.**

Since the last annual report, the capital has been increased by creating 4000 shares, which have been disposed of agreeably to the Act of March 25, 1845.

The total means provided for construction and equipment of road have been

34,000 shares at \$100 each.....	\$3,400,000 00
£135,000 sterl. bonds, payable with interest at 5 pr ct. April 1, 1868.	
337,500 " Oct. 1, 1868.	
90,000 " Oct. 1, 1869.	
180,000 " April 1, 1870.	
157,400 " April 1, 1871.	

£899,900 average due July 5, 1869....	\$3,999,555 56
Albany city bonds payable with interest at 6. per ct. July 1, 1866.	\$250,000
" July 1, 1870.	300,000
" July 1, 1871.	200,000
" July 1, 1876.	250,000—\$1,000,000 00

\$8,399,555 56

Am't paid to Albany sinking fund.....\$100,000 00

Am't paid income for money previously paid into the sinking fund, as per act of March 25, '45 114,736 68

Am't accrued to the sinking fund Nov. 30, 1846, but not due until January 1, 1847..... 45,833 34

Total am't paid for construction and equipment of road (see table A).....8,185,788 42—\$8,446,358 44

Excess of funds expended over am't provided..... \$46,802 88

It will be perceived by reference to the annexed table marked A, that \$296,079 11 has been expended for construction and equipment of the Western and Albany and West Stockbridge railroads during the eleven months ending November 30, 1846, and that most of it has been expended for engines, cars, land, and additional track.

The attention of the Directors was early called to the importance of providing more

efficient means for doing the business of the road; at which time it was decided to order six engines, in addition to the four then ordered, and 100 long eight wheeled freight cars, in addition to 90 previously contracted for, all of which have since been put upon the road, and most of the cost charged to construction.

**TABLE A.**  
*Table showing the Cost of the Western and Albany and West Stockbridge Railroads to November 30, 1846.*

Heads of Expenditures.	Amount paid to Dec. 31 1846. A. & W. S. Railroad.	Amount paid in 1846. A. & W. S. R. R.	Total Amount paid. Western Railroad.	A. & W. S. Railroad.	Total cost of both Roads.
Graduation and masonry.....	3,146,494 36	7,545 50	3,154,039 86	889,635 96	4,007,412 05
Bridging.....	163,736 23	1,161 66	163,736 23	293,796 65	1,347,760 11
Superstructure, including iron.....	1,031,686 08	524 83	1,054,033 46	175,173 92	425,505 93
Station buildings and fixtures.....	232,178 14	4,563 13	250,332 01	204,022 99	481,029 15
Land, land damage, and fencing.....	234,454 97	42,551 19	277,006 16	418,978 14	55,066 49
Locomotives.....	347,470 72	71,507 42	418,978 14	370,548 01	879,488 54
Passenger and baggage cars.....	50,418 02	4,648 47	55,066 49	213,637 93	6,185,788 42
Merchandise cars.....	249,018 41	122,529 60	370,548 01	1,776,197 45	
Engineering and other expenses.....	665,850 61		665,850 61		
	6,120,307 54	289,283 43	6,409,590 97		

It was also deemed essential that the turn-out tracks should be lengthened, where trains are liable to pass each other; and that a third track should be put down in front of the depots, for cars that may be stopping at the stations—which improvements have mostly been made, including about two miles of track from Pittsfield to the junction with the North Adams railroad.

Purchases of land have been made, during the season, at Worcester, East Brookfield, Palmer, Springfield, and Chatham, amounting to about \$40,000; but the quantity purchased has been limited to the necessary wants of the corporation.

By the provisions of the act of March 25, 1845, a further issue of 1500 shares of the capital stock can be made,

Which will amount to.....\$150,000 00  
Of this amount, there has already been expended for construction and equipment of the road.....\$46,802 88  
And there will be required to pay into the sinking funds..... 50,000 00—96,802 88

Which will leave for construction and equipment of the road..... \$53,197 12

By this exhibit, it will be seen that further provision to supply the means to be expended for construction the coming season, which deficiency, and the requirements of the road hereafter, can only be provided for by an increase of the capital stock.

The Pittsfield and North Adams railroad was considered as opened for public use on the 1st day of December, 1846, at which time the Western railroad company commenced operating it, under a lease of thirty years, the particulars of which have been previously reported.

**SINKING FUNDS.**

The Massachusetts fund was, as per last report, on the 1st of Jan. 1846. \$290,610 61  
Interest on dividends since received... 17,436 51  
Profit on sales of Providence railroad stock..... 1,234 25  
Dividends and interest accrued and not due..... \$,775 50  
Eleven-twelfths of \$10,000, accrued to Nov. 30, and not due till Jan. 1, '47 36,666 67

Total amount of Massachusetts fund. \$349,713 54  
The Albany city fund was, as per last report on 1st Jan. '46....169,876 60  
Interest accrued in 11 m's. to Nov. 30, 1846..... 10,900 50  
Eleven-twelfths of \$10,000, accrued to Nov. 30, 1846, but not due till January 1, 1847..... 9,166 67—189,945 17

Total value of both funds Nov. 30, '46 \$589,658 71  
From which deduct an amount which if put at compound interest Nov. 30, 1846, will produce \$319,964 44 when the sterling bonds average due, say July 5, 1869, being for exchange on maturity of scrip..... 85,720 00

Net value of the two fds Nov. 30, '46 \$453,938 71  
The value of the Massachusetts sinking fund will be, at the time the scrip averages due, provided nothing further should be added to it, reckoning compound interest at the rate of six per cent. per annum, say from Nov. 30, 1846, to July 5, 1869, 22 years, 7 months, 5 days..... 985,398 84

The value of the Albany sinking fund will be when the principal falls due, provided \$10,000 be added annually to the principal, with interest at the rate of six per cent. per annum, say from Nov. 30, 1846, to March 13th, 1871, 24 years, 3 months, 13 days.. 1,299,156 83

Total value of both funds when the principal falls due, provided nothing further be paid into the Massachusetts fund..... 2,284,555 67

The value of the Massachusetts fund will be, provided the law requiring 40,000 per annum to be added to it, reckoning compound interest at six per cent. per annum, when the principal falls due..... 2,783,286 22  
Add value of Albany fund, as stated above..... 1,299,156 83

Total value of both funds when average due..... 4,082,443 06

\* Six engines and four passenger cars are now building, which will cost \$57,500.



From the preceding statements it will appear that the affairs of the corporation are in a flourishing condition; and it affords the Directors much satisfaction to say, that the prospects of the road for the future are very encouraging. All of which is respectfully submitted.

Aldison Gilmore, Edmund Dwight, John Howard, Robert Campbell, Stephen Fairbanks, Josiah Stickney, Jonathan Chapman, Abraham H. Howland, James Russell,  
BOSTON, Jan. 11, 1847. Directors.

#### Foreign Iron Trade.—Items.

We clip from our exchanges, and other journals, received from Europe by the last arrival, the following items, in reference to the iron business abroad:

**Iron Trade and Railways of Belgium.**—A letter from Brussels, states that the iron trade of Belgium is receiving, from the extension of railways in that kingdom, a perceptible and unprecedented impulse. At the monthly meeting of the Ironmasters, held on the 8th inst., it was decided not to raise the price of pig iron; but all large orders at the present rate of £5 8l. per ton, taken at the works, are refused, and in some instances, an advance has been freely given, there being no stock to fall back upon. For rails, £12 16s. per ton, the other descriptions bar iron prices remain the same, and the rolling mills are fully occupied; altogether, the prospects of the trade are highly satisfactory.

In the *Moniteur Official*, which publishes a monthly list of the value of the shares in the various companies, there are some striking instances of the rapidly increasing value of all property connected with the iron trade of this country. Among others, the iron works of Sclessin, near Liege, the shares of which, on the 1st of January, were at 995f., are quoted on the 1st day of November last at 1200f., or 20 per cent. premium. The shares of l'Esperance were at 845 in January, they are quoted on the 1st of November, at 1425; but the most striking instance is the shares of Monceau iron works, situated at the northern terminus of the Sambre and Meuse railway. In January, the 1000f. shares were at 2000, and on the 1st of November 2300, with buyers. The 1000f. shares of the Providence Works, which are of more recent date, are quoted at 1500f. This company has just finished erecting a very large rolling mill on the borders of France, to avoid the present high duties on rolled iron.

The English Iron market has been rather animated during the week, owing to the Gt. Northern railway company having closed for about 45,000 tons of rails, out of 75,000 tons, for which they advertised. The contracts were taken by two eminent Welsh houses at a price equal to £9 12s. to £9 15s. at the works in Wales. It is reported the directors of the company were willing to have closed for the remaining 30,000 tons at the above rates. In Staffordshire and Welsh pig iron a very good business has been done during the week, at full prices; and owing to the large orders now in the market for railway chairs there is no doubt an extensive demand will take place ere long both for Welsh and Staffordshire pigs. Scotch pig iron has been in

good demand, and several sales made during the week, at prices varying from 72 to 74s., according to numbers. Swedish iron and steel are firm at quotations. English copper and tin remain unaltered. Banca and Straits are in fair request at quotations. English lead firm. Spelter for spring delivery has been sold at £19, and on the spot £19 12 6 has been paid. As the navigation is now closed, and our stock reduced to about 2000 tons, there is no doubt higher prices will be realized.—*Corresp. London Mining Journal.*

#### Roman Mining and Iron Foundry Society.

—At the present time, when the projected railways in the States of the Church are exciting general attention, as proofs of our internal resources for their formation, may be numbered the two establishments for the manufacture of iron, which, within a very short period, have risen to be unrivalled by any in Italy itself, and to compete in excellence with the most celebrated of other countries. We speak of the establishments of Tivoli and Terni; the one in the neighborhood of Rome and with the inexhaustible advantages derived from the waters of the Anio, has already two great machines, besides many other minor ones, for the fabrication of tools for the labors of the field, and instruments of every sort for weaving, of qualities so perfect and so much sought for as to supply not only the entire states of Rome, but also those external. The other establishment, that of Terni, receiving aliment from the river Velino, is a foundry supplied also with the most spacious premises, magazines and habitations for the laborers; machinery the most excellent, the springs and wheels of iron; eight large forges, four great mallets and two great pumps, with a cylinder of enormous dimensions: as yet the only one in Italy adapted for the fabrication of the rails, the latens, etc., for railways. Now these two establishments united together, and working in full activity, might easily fabricate iron, cast, beaten and wrought cylindrically, to the amount of 12,000,000 pounds weight per annum. The proprietors of both foundries, knowing from experience how much their interests were to be served by the increase of capital, have determined on forming an anonymous society, which vesting by means of actions the sum of 600,000 scudi, might make itself responsible for the two establishments, amplify the sphere of operations and carry on the working of the mines this country possesses. Accordingly was held, on the 15th November, the first general assembly of the society, at which about 200 assisted; it was in truth a convention of nobles, proprietors, merchants and artists, most goodly and honorable; the first occasion we believe when it has been shown how readily the Italians are to respond to the appeal of an industrial association, in the same degree as they have been to associate themselves for the purposes of benevolence whenever called to do so. In this assembly were initiated the measures for the direction of the society; a president was elected, the able and scientifically instructed duke, Don Mario Massimo; and two special commissioners were appointed for the revision of the statutes and contracts

that have relation to the government, etc., of the body. And thus, within a short time, we shall see it legally constituted, prospering and maintaining its important post, so as to administer to the necessities of the state, and to undertake the vast works of the railroads to which his Holiness Pius IX. has graciously acceded his protection; as he has also deigned to recognize as worthy, and bestowed his approbation upon, the objects of this honorable association.—*Roman Advertiser.*

**West of Scotland Iron Company.**—We lately visited the West of Scotland Company's Malleable Iron Works, at Motherwell, says the *Glasgow National Advertiser*, which have been only recently brought into operation. We believe that this establishment is not only the most extensive, but perhaps the best constructed malleable iron work in the kingdom. We found only part of the works in operation; but from the state of forwardness of the remaining portion, the whole will probably be at full work in a few months hence; when they will turn out 700 tons of rails weekly. The extent of the works may be conceived, when it is stated that they will manufacture 50,000 tons of pig iron, consume 100,000 tons of coals annually, and employ 1200 to 1500 men.

**Elginton Iron Works, Ayrshire.**—One of the three new furnaces, recently constructed here, was put into full blast a short time since—George Johnstone, Esq., of Redburn, presiding at its celebration. The others will soon follow. The building of a 4th furnace has already been commenced, and others are said to be contemplated.

**Contracts for Rails.**—Mr. Levick, of the eminent house of Crutwell, Allies & Co., of South Wales, attended in Dublin last week, and concluded contracts with the Gt. Southern and Western, the Dublin and Belfast Junction, and the Dundalk and Enniskillen companies, for the delivery in all of 15,000 tons of rails.

**Iron Trade.**—At a meeting of the proprietors of the Clay Cross Collieries, held at Derby a few days since, it was determined to open iron work, in conjunction with that colliery without delay. The circumstance of beds of iron, lime and coal, lying contiguous to each other at clay cross, will, it is supposed, render the undertaking very profitable.

☞ The *London Mining Journal* of December 15th, contains the following:

"I invite your particular attention to the following statement, the facts of which are borrowed from *Le Siecle*, some of whose writers are intimately connected with the railway alluded to:

"The Northern Railway company, after having vainly attempted to procure rails in France, demanded of the government permission to import 25,000 tons of rails from abroad. It did not demand to introduce this great quantity of iron free of duty, but contented itself with proposing to pay such a duty as should make the rails 350f. (£14!) a ton, which was what it paid last year. It calculated that it could procure rails in England at from 240 to 250f. a ton; that the

price of conveyance would be from 40 to 50*f.* a ton; and that a duty of from 50 to 60*f.* a ton would, under the peculiar circumstances, be accepted, instead of the modest 20*f.* a ton inscribed in the tariff. Such an arrangement would have yielded 12,500,000*f.* or 15,000,000*f.* (500,000 or £600,000 to the national exchequer, and would have done no harm to the ironmasters; for, be it repeated, the company had vainly attempted to procure in France the rails it demanded permission to introduce. Will you suppose, naturally enough, that the Minister of Commerce hesitated not one moment to accord the required permission? How, indeed, you will ask, should he, when he has every day under his nose official returns, showing what the ironmasters can produce, and what they have undertaken to supply—returns which prove most clearly that the greatest miracle on earth could not enable them to meet their engagements. But, ah! you don't know this good minister of commerce. Instead of ordering the custom house to be thrown open to the English rails at 50 or 60*f.* a ton, the worthy man sent to the committee, which the ironmasters have elected to preside over them, to ask what they had to say to the demand. The ironmasters, of course, with more than their brutal selfishness, unhesitatingly declared that the offer must not be accepted. It will seem incredible to you, that men who cannot do a thing, are determined to prevent others doing it; but, incredible though it be, such is really the truth of these iron monopolists of France. They, however, by way, probably, of gilding over their scandalous refusal, proposed to undertake, by clubbing among themselves, to supply the rails at 380*f.* the ton! But, it may be asked, could the company get the rails even at that exorbitant price? Most certainly they cannot, unless as the *Siecle* says, they import *fonte*, to fabricate them from Belgium or England; and, even if they import *fonte*, not the slightest reliance could be placed upon their promises or their treaties."

**American Orders.—The Iron and Birmingham Trade.**—A correspondent, writing from Birmingham, on Thursday evening, says—"I am glad to be able to state, that the commercial letters received here on Tuesday, from America by the *Britannia*, are of the most favorable description, and hold out prospects of such a demand for goods, as cannot fail to secure employment at remunerative prices in this district for some time to come. At all the houses, brisk orders have been received, with an assurance in some of the advices, that a very considerable increase in the demand may be fully expected in this and the month of January. At some establishments the orders for chains and heavy iron work is so great, that it is confidently asserted the manufacturers of these articles have now before them full twelve months' work. The most gratifying fact, however, connected with this demand is, that it is the result of low stocks in the United States, and not of speculation, which would render the returns doubtful. There is, therefore, but one thing which can at all interfere with these pleasing prospects—and that is an attempt to raise the

price of the raw material above the standard of the competitive market. It is now confidently asserted, by some persons in this locality well acquainted with the iron trade, that a rise in the prices will take place at next quarter day, and that this step will be fully justified by the increased foreign and home demand for manufactured goods, and the sustained railway consumption. On the other hand, I am authorised by one of the largest makers in South Staffordshire to state, that such an advance will not take place, but that the present prices will certainly be maintained. In proof of the sincerity of this opinion, my informant assured me he was prepared to take an order for 30,000 tons at the present prices; and if the opinions and actual position of the merchants and manufacturers be considered in the question, there would seem to be good reasons for the adoption of this course. A commercial letter now before me, from a large American house, says—"I send you an order for bar iron, at the quotations of the 19th of October, (the first after quarter day;) but if the price advances as high as 10*s.* per ton above this quotation, please omit the present order." Added to this, the universal opinion of all the merchants is, that if there is no advance, there will be a greatly increased demand for iron and made goods; but that, if there is an advance, the demand will inevitably be curtailed. Knowing the importance of this question at the present moment to a large body of commercial men, I have collected the best information upon the subject."

**Railway Statistics.**—The returns of the leading railways for the second half year of 1846, give the following comparisons and results, in round numbers:—London and North Western, 350 miles, with a capital or cost of £13,000,000; gross receipts, above £1,000,000; divided to shareholders, £543,929; paid £21,425 for local rates and taxes, and £24,582 for the government duty of five per cent. on passengers, besides property tax, income, stamps, etc., being equal to about nine per cent. on what the shareholders divided for rates and duty. Great Western, 222 miles; capital £8,000,000; gross receipts, £496,000; divided to shareholders, £301,807; paid £15,030 local rates, and £14,748 government tax, etc., equal to about ten per cent. on the shareholders' profit. The Midland railway, 178 miles; capital £7,250,000; gross receipts, £324,000; divided to shareholders, £170,000; paid £7130 for rates, and £6845 for government tax, besides, etc., or eight per cent. on dividend. The Manchester and Leeds, 84 miles; capital, £3,750,000; gross receipts, £153,000; 1,000,000 passengers; divided among shareholders, £86,470, after paying £4414 local rates, and £3464 duty, besides, etc., or ten per cent. On a rough estimate of the 12 leading English railways (those we have enumerated among the number) of 1250 miles (or at 10 acres per mile, 12,500 acres) there was paid for only half a year, £75,951 local rates, and £73,177 government tax on passengers, besides income tax, property tax, stamps, etc. Estimate that for a year, and we have £152,000 and £146,000 for these 12

railways, paid in reality by the public, to local and general taxation. Estimating the present railways at double that length of miles, gives 2500 miles, or 25,000 acres, paying about 96 times more than agricultural land, mills, or other property, which pay as many threepences as railways do pounds for the same extent of land to the local taxes, etc.

#### Cold Spring Iron Works.

On the Western bank of the river Thames, a mile and a quarter, perhaps, below Norwich Landing, beside the New London turnpike, stood, some time ago, a brewery and distillery. The ground is now redeemed for more beneficent uses, furnishing the site of the Cold Spring Iron Works. The business is carried on by a joint stock corporation, of which Mr. John Huntington is president. The building is of the most simple character, no other being requisite, of plain boards, one story high, like a blacksmith's shop, with sky lights, but without a floor. The sight of it reminded us of the Millerite tabernacle in Boston; and a glance at the works within by no means served to drive away the thoughts of the end of the world which the exterior had awakened. The establishment was first commenced in September, 1845. The preparations having been completed in April, 1846, the work was begun; but almost immediately afterwards was brought to a very sudden termination by the occurrence of a fire which consumed the building. In the month of June next following, the shop having been rebuilt, the work was resumed. The building is 117 feet by 55.

The business is the rolling of iron into bars by means of machinery, rather a novel one in this part of the country, and well worth a visit from strangers. The stock is scrap and pig iron. The first is collected in the vicinity; the pig is obtained at the greater markets. The whole is American.

From six to ten tons of coals a day are used; a fact which will help to give some just idea of the magnitude of the operations. The coal was formerly brought from Pennsylvania; but at present the Pictou and Sidney coal is employed to feed the fires.

Steam power is the kind used; the engine being of a hundred horse power. The manufactured iron amounts to about 1200 tons a year, representing a value of \$100,000 or more. Most of this is furnished to order; the remainder goes to the New York market. The mill is kept running on an average only five days in the week, by which time the furnace commonly needs repairs, and is suffered to cool for the purpose. From the steam produced in heating the iron, is made the power for rolling it. The engine was built by Hinckley & Drury of Boston. It is kept running day and night. We had almost forgotten to mention, that a no inconsiderable part of the business is the manufacturing of hoops for whaling casks.

The company employed about 40 men.—Some of these work by time, and some by the ton. They make good wages, getting, when the works are in operation, about two dollars a day.—*Norwich Courier.*



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

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Saturday, January 30, 1847.

### INDEX FOR 1846.

With the present number of the Journal, our readers will receive the *Index* for last years' volume.

#### Columbus and Erie Railroad.

A friend, dating at Newark, Ohio, writes us as follows: "From the interest you exhibit on the subject of railroads in Ohio, you will doubtless be gratified to learn, that the Board of Directors of the Columbus and Erie railroad have resolved to place the road under contract from Mansfield to Newark as soon as the engineer can prepare and make the proper estimates. If the 'Central Railroad' from Philadelphia to Pittsburg is carried forward, as is anticipated, we confidently expect to be 'put in communication' with Philadelphia, via Pittsburg, by railroad, within five years. A road from Pittsburg, (if that city keeps her interest in view,) towards Columbus will form a junction with the Columbus and lake Erie road at this place unquestionably. Zanesville is already moving in the matter, and will doubtless go forward to Wheeling, unless Pittsburg anticipates her."

In connection with the above, we find the following in the last number of the Ohio State Journal, touching upon the same subject. The editor says:—"The following communication is from a source which entitles it to the highest consideration of our citizens. No man in Ohio commands more fully the confidence and respect of the people of the state, than the writer. We commend his concluding suggestion, to the early and attentive consideration of all concerned:—"

*The Columbus and Lake Erie Railroad Company.* This charter, passed in March, 1845, authorized the construction of a railroad from Columbus to some point upon the Mansfield railroad. An organization was held in February, 1845; last fall, soon after the Mansfield railroad was finished, a survey was commenced, and so far matured, that at the December meeting of the Directors, the line from Mansfield to Frederic was adopted as a part of the route.

At a Director's meeting at Mansfield on the 19th inst., surveys had been extended so much as to lead to a selection of the route to Columbus, by way of Newark. The subscription and resources of the company were such as warranted the Directors to order the line to be prepared for letting, and in a few weeks, as soon as the necessary estimates can be made, the whole distance, from Mansfield to Newark, will be placed under contract. Encouragement has likewise been given, that the road will be made at the same time from Newark to Granville. The Directors find abundant reason to justify the belief, that the whole road from Granville to Mansfield will be finished at an early period.

Thus a railroad will shortly be in operation from the lake to a point within 26 miles of the state house; and if a subscription of \$100,000 can be raised in Franklin county, a locomotive, fed by lake waters, may whistle in the streets of Columbus within two years. But—

Mansfield, January 22, 1847.

#### Iron Trade in England.

By the arrival of the last steamer from Europe, the most cheering accounts are received in relation to the iron business. A very great improvement has taken place in prices, during the past month, and it will be seen by our quotations to day, that this advance promises permanency at least for the present. Wilmer & Smith inform us that the new year has commenced with a decided improvement in the value of iron. Pig iron may be considered as 58s. per ton, and merchant bar iron 10s. per ton higher than the prices in the beginning of December last. This improvement seems likely to be of some continuance, and there seems little doubt that, before the end of the present month, prices will be still higher. It has been ascertained that the stock of pig iron on the 1st January, 1847, is about 100,000 tons less than the quantity held on the 1st of January, 1846, and that the make at present is incapable of any considerable extension, as there is a deficiency of colliers and skilled workmen.

The make of bar iron is reduced in a still greater ratio, in consequence of the continued demand for rails, which has induced many of the iron masters to diminish or extinguish their make of bars, and to turn out a greater quantity of rails; the demand for other descriptions of iron is fair, but not excessive, hence the improvement on these descriptions has not kept pace with that on pig iron and merchant bars. Without reference to a foreign demand for iron, we see in the requirements of Great Britain and Ireland, and the East and West India and Canadian dependencies, full employment for the English ironmasters for some time to come, and should no other counteracting causes intervene, we believe that the prices for 1847 will be above the trade average. The following are the present quotations delivered in Liverpool:—Scotch pig, £4 5s. to £4 7i. 6d.; merchant bar, £9 10s. to £9 15s.; best rolled, 101 15s. to 111; hoop iron, 111 10s.; sheet, 121; I C charcoal tin plates, 32s. per box.

The London Mining Journal of January 2d, in its article upon the iron trade, says "that great activity has prevailed during the past two or three weeks, in the iron trade, in South Staffordshire: many large contracts have been taken, and others as extensive are now under consideration: much is said of the unusual scarcity of ironstone, and very high prices are realized—while coals are a still more difficult article to obtain. Notwithstanding this state of things, a great discrepancy exists as to prices; a large Welsh house has tendered to the South Staffordshire company, to deliver at one of the Grand Junction stations, rails at £10 2s. 6d. per ton; while a Staffordshire house has found it to their interest to violate the rates agreed upon at the previous meeting, and who have supplied rails at £9 18s. 6d., and chairs at £6 18s. 6d. per ton. Some speculation is entertained as to the decision which will be come to at the ensuing quarterly meeting; but it is generally believed that notwithstanding the demand for railway iron, which would justify an advance, the masters will not make any addition to present prices.—Such a proceeding would probably cause strikes among the workmen and miners, unless increased wages were agreed to; and many of the small manufacturers, who have many contracts on hand, and have for months realized but seriously scanty profits, would most probably be ruined. The advance on coals at the pit's mouth is 1s. per ton. Upon the whole, there appears every probability that the price of iron for the next three months will remain firm; and that, notwithstanding the demand is considera-

bly above the supply, every effort will be made to execute present railway orders at existing rates."

Our own private letters, received by this arrival, from an intelligent American, now in England, who has for many years been connected with the railroad interest in this country—and in whose judgment we place reliance—confirm this intelligence. He informs us that he has conversed with a practical man in London, well acquainted with the subject, who assured him but a day or two prior to the steamer's departure, that he would not be willing to contract for the delivery of railroad iron hereafter at £12 5s.

The demand for iron is very brisk, and large orders have been filled at our quotations. In France, a similar activity prevails, and all the indications show that a most flourishing business, at advanced prices, must follow in this business, during the present year. In relation to this subject, we make several extracts from English journals, to-day—to which the reader is referred.

#### Railroadiana.

A public meeting was held at Mobile, Alabama, on the 12th inst., to consider a proposition for connecting that city with the waters of the Mississippi and Ohio by means of a railroad to some point on the Mississippi, below the mouth of the Ohio. Resolutions were passed, declaring it to be the duty and interest of the citizens of Mobile, to join in the struggle for internal improvements in which the older cities of the Atlantic are striving to draw to their storehouses the products and wealth of the great west; and expressing an opinion that the contemplated railroad is both desirable and practicable.—A committee of fifty was appointed to adopt all necessary means to promote the enterprise.

The principal objection, says the Philadelphia U. S. Gazette, to making New Orleans a terminus for a line of trans-atlantic steamers, has been the bar at the mouth of the Mississippi. But for this it would long ago have had a line of steamers plying between there and England. A fine harbor has been discovered on the Gulf, and from this place, known as Cat Island, it is proposed to run a railroad to New Orleans, a distance of 60 miles, which will enable passengers to reach the city quicker and at a cheaper rate, the distance from the bar being 110 miles.—The railroad is now being constructed, and there is every probability that Cat Island will be made a terminus for the British West India steamships.

The people in the northern section of New York are taking active measures to fill up the subscription to the stock of the Rome and Cape Vincent road.—Thus far, \$425,000 have been subscribed. The charter provides subscription for the road to be made by separate sections—the first extending from Cape Vincent, on the river St. Lawrence, to Watertown; the second from Watertown to Salmon river; the third from Salmon river to Rome. As soon as the stock is taken for the first and second sections (750,000) the company may be organized by the choice of a board of directors, authorized to go on with the works.

The Boston Traveller states that the following resolutions were passed at the annual meeting of the Fitchburg Railroad Corporation, at the Tremont Temple, on Monday:

*Whereas*, The interests of this corporation will be greatly promoted by a connection with the Vermont Central railroad; and *whereas*, agreeably to an arrangement between the two corporations, the said Vermont Central railroad company have acted in good faith, by commencing the construction of their road at Windsor, so as to insure the said junction, therefore

*Resolved*, That it is incumbent on the corpora-

tion, both as a company and as individuals, to act in good faith in carrying out said arrangement.

*Resolved*, further, that the Sullivan railroad, designed to connect the Cheshire with the Vermont Central road, has our confidence, and is worthy of the aid of the community, and particularly of the stockholders of this corporation, and that we will do, as individuals, what we can, by subscription to its stock, to insure an object so necessary to our interest.

The inhabitants of Rock Island have held a meeting, at which it was agreed to apply for a charter to build a railroad from Rock Island to the southern terminus of the Illinois and Michigan canal. The distance is 90 miles, and the face of the country, over which it is proposed to carry the road, is highly favorable.

The Bangor Democrat makes the following remarks on the subject of the Maine railroads: "The railroad fever in the central part of the state and farther west has not abated. The question whether there is to be one or two roads remains undecided. Both routes are the shortest and the best according to the most respectable authority, and both most deserve the favor of the public. The people in this part of the state do not of course care whether the railroad east from Portland runs on the lower or upper route to the right point on the Kennebec for striking across to Penobscot. But it would be a pity to have two parallel roads near each other, as neither could then be profitable, and it may be that if the friends of each do not unite both may be defeated for the present. We therefore hope there will be a union of interests, as the best thing for all concerned. It strikes us at present, that the people of the eastern part of the state will not consult their true interest by being partisans of the 'broad gauge,' as the narrow will answer all our purposes, and is, therefore, the best for us as it will be the least expensive. The broad gauge road may be the best for very heavy transportation, but the narrow will be all that is required between the two rivers, and uniformity is very desirable."

The Boston Courier—naturally "very cool" upon all topics of public interest, alluding to the subject of the railroads "down east," says—"The lower Kennebec country is in a blaze of excitement with regard to the railroad from Augusta to Boston, with a branch to Bath. Mass meetings have been held in most of the towns upon the route, which have been swelled by large delegations from other towns, interested in the project, and a degree of enthusiasm has been manifested, as detailed in the Kennebec journals, which shows that nearly the whole population is enlisted in the enterprise, and that the work must and will be accomplished. The first assessments were apportioned as follows—Bath, \$150,000; Augusta, 100,000; Gardiner and Pittston, 100,000; Brunswick and Topsham, 60,000; Hallowell, 50,000; Bowdoinham, 20,000; Richmond, 10,000; Freeport 10,000; and all agreed to go to work and fill up the list. It has since been found that Augusta is good for at least 125,000. The subscriptions in Gardiner considerably exceed their quota of 100,000; Bath has 125,000, and will go up to 150,000, if not 200,000 yet; while Brunswick and the other towns on the line will soon fetch up and exceed theirs.

"Thus far have the subscriptions progressed. A road passing through such a country, and having such a community to back it, can have but little chance of failure. The Augusta Journal states, as from authority, that a Boston engineer has been employed to superintend the construction of the road who will enter upon his duties forthwith; that they are warranted in saying that the road is now begun, that proposals for grading the whole line will be ad-

vertised in season to break ground as soon as the snow is off."

A company of engineers are now employed in surveying the southern portion of the Hampshire and Franklin railroad, on that portion of the road lying between Hockanum and Willimansett, a distance of seven miles. Individual land boundaries have also been taken on the line between Hockanum and Grout's in Montague.

For the American Railroad Journal.

Newcastle, (Del.), January 4, 1847.

'There was a communication in one of the November numbers of the Journal—which, having been mislaid, has just come under my notice—signed E. H. Derby, on the subject of Mr. Whitney's Oregon railroad; and as I differ somewhat from Mr. Derby's views on that subject, I trust that gentleman will not take it amiss, if, in the kindest spirit in the world, I point out wherein I differ, and my reasons for so doing.

Mr. D. starts by mentioning the vastness of the undertaking, and the interest that has already been awakened to it in the public mind in every part of the country, which is very true, and is a striking instance of the effect of patient and continued perseverance directed to one great object—of which few persons have evinced more than Mr. Whitney, or with, at the outstart, a poorer prospect, perhaps, of success. When, about two years since, in a personal interview with Mr. Whitney at his rooms, where books, maps, charts, etc., bearing on the subject, were freely scattered on all sides, to whose examination, comparison and digestion he was devoting the energies of his mind, I received from himself a development of his great plan—which I considered so feasible, that I intended to accompany him in his explorations of the country to the Missouri river, which he then had in view, and afterwards accomplished, but I was prevented by circumstances. It was, I confess, with some misgivings that I opened the subject to my friends and acquaintances, lest the smile of incredulity, which it often met with, should be my only reward. I mention this to show the change that has taken place in public sentiment on this subject in the brief space of two years—the result of Mr. Whitney's single-handed efforts.

Mr. D. then proceeds with his first objection to Mr. Whitney's plan, viz: the great length of the work—say 3000 miles from one seaboard to the other—and the consequent heavy charges to which merchandize will be subjected in passing over it. This your correspondent puts at \$45 per ton, or at the rate of \$1 50 per ton per 100 miles, or the lowest rates at which merchandize is transported on the railroads of the country. While I admit this latter position, I consider \$45 per ton too high, for several reasons. In the first place, merchandize starting from New York, for instance, would pass by the present improvements to Lake Erie, and then availing itself of the navigation of the lakes, reach the commencement of the Oregon railroad, considerably less than at the rate of \$1 50 per ton per 100 miles. The English trade would probably pass up the St. Lawrence to Lake Ontario, and thence availing itself of the increased facilities lately afforded by the enlargement of the Welland canal, up the lakes to "Whitney"—for such I would suggest as the name of the starting point of the Oregon railroad—also at a less cost than the rate before spoken of. In short, instead of merchandize being subjected to railroad charges for the distance of 3000 miles, 22 or 2300 would be the extent, (unless in winter)

and the "flowing sheet, and glancing keel," to which your correspondent poetically alludes, would do much of the rest.

I think I have already shown that the charges may be reduced from \$3 to \$5 per ton on this portion of the route. Now let us see if it will not fairly admit of further reduction on other portions. This is a work that, singularly enough, will cost no man a dollar; no man will be able to say that it has taken one cent from his pocket. Nature has kindly furnished the capital—she will be the great shareholder; and she will require no dividend beyond the increased welfare and enjoyment of the creatures she has placed here to be the recipients of her bounties. The vast outspread and unoccupied prairies and the tangled and untrodden forests, are the capital. This is an answer to Mr. D.'s third objection—the great absorption of the wealth of the country. The wealth that is to build the railroad lies hidden in the soil, and the plough of the emigrants which the railroad shall invite to these regions, shall turn it up, and render it available.

As to Uncle Sam—there never was an uncle before that had so much money to throw away in a quarrel, and so little for any purpose that equits toward usefulness. If dame Nature has ever signed, sealed and delivered any title papers by which he claims these regions, he will doubtless rejoice at such a disposition of them; as at the present he appears much inclined, by such devices as land graduation, preemption, etc., to shake himself clear of as much of his landed estate as possible.

By these remarks I mean, that whereas a profitable investment of capital with reference to cash dividends is always the first point considered in ordinary enterprises. This would look to no such result. It is a great national affair, whose dividends will be rich in public good—in business relations and good-fellowship with the most unfrequented parts of the world, and in an iron bond of brotherhood reaching from Maine to Oregon. We might as well require of the navy to pay six per cent. interest, or the "small fort" below your city to declare semi-annual dividends, as to make that a condition on which should depend the construction of the Oregon railroad.

If, then, we leave this condition out of sight, and I appeal to Mr. D. whether we may not—if indeed his calculations contemplated such a result—a tax upon the business of the road barely sufficient to work it, and keep it in repair, is all that is required. And as the ordinary expense of maintaining and working railroads, may, it is believed, be assumed at 50 per cent. of the gross income—the other moiety being consumed in the shape of returns upon the capital employed—it follows that the Oregon railroad could transport both goods and passengers at one-half the cost of other railroads. But as the passenger business would bear to be taxed at the ordinary rate of, say, three cents per mile (if necessary) the charges for freight could be still further reduced, if desirable.

If we call the cost of the road, agreeable to your correspondent's estimate, and I think he is not far from the mark for a road of first rate capacity, \$30,000 per mile—this, at 2,400 miles, the distance by Mr. Whitney's calculations, gives \$720,000,000. This is to be understood as including equipments—all complete. If, then, the cost of working and repairs amount to \$4,320,000 per annum—or 50 per cent. of a sum that would pay six per cent. interest, a very ample allowance—let us see what amount of business is necessary, and at what rates, to obtain this sum. Well, 50,000 passengers, at, we will say,



two cents per mile, or say \$50 each, gives \$2,500,000; and 75,833 tons of freight, at, we will say, to be safe, \$1 per ton, per 100 miles, or \$34 per ton, equals \$1,820,000; and altogether the above sum of \$1,320,000—an extravagant sum, as it would appear, for the purpose. This is a number of passengers, and an amount of tonnage, equalled by perhaps half of the railroads of the country, and evidently far below the mark. I give these statements to show what a comparatively small amount of business the road could live on.

But I think your correspondent's estimates might be still further reduced, viz: the cost of shipment from China—the trade with China not being alone of importance, however, but also that, as Mr. Whitney tells us, "of Mexico, South America, (western coast,) with all the islands in the Pacific, with China, with Japan, with Manilla, with Australia, with Java, and with all India"—to the mouth of the Columbia. Mr. D. call it \$15 per ton, still rather high, I think. The distance between these points is about 6,000 miles, and to China, by Cape Horn, nearly 18,000. Now if \$30 a ton is the price of freight from New York to China by sea, we cannot fairly put the freight to Oregon from China, over a calm, smooth ocean, like the Pacific—of which a scientific gentleman attached to one of our national vessels says, that he never saw upon its surface a wave of more than 20 feet in height—especially if we include the difference in the rate of insurance—at more than one-third of the former. However, we will use Mr. D.'s figures for this item.

We have, then, \$15 to Oregon, \$24 to the lakes, and for the remainder, lake and canal carriage—about 600 miles—I shall say \$6, and altogether \$35, or but \$5 more than by sea, besides a saving in insurance, and interest on capital employed; but I shall make a more distinct reference to these items hereafter.

I have heretofore spoken of the trade between this country and the East—or rather "West," as these countries will get to be when the Oregon railroad is completed—but I shall now speak of the trade of England and Europe in connection with this channel. And with reference to this trade I will admit all that Mr. D. assumes as to charges, with the exception of that from the lakes to the Atlantic; on which account I deduct \$3 per ton. Of course it is not to be expected that we shall build railroads for the accommodation of strangers, without a *quid pro quo*—therefore the allowance of \$1 50 per ton per 100 miles, from Oregon to the lakes, is correct, I think, as applied to this trade. We have then \$57 from China to the Atlantic coast and \$6 thence to Liverpool, by sailing vessels, gives \$63 per ton, in this comparative scale of charges.

The time occupied in sending out goods, or specie, to China, and getting a return, is not less than 12 months. Now if every ton of goods that is sent to or returned from China, is worth \$500, that is to say, if every pound is worth 25 cents, and I think on examination this will be found low enough, as take the principal articles shipped from this country, specie, domestic cottons, (the principal) ginseng, furs, manufactured tobacco, spermaceti candles, etc., (\$175,000 worth of lead being the principal exception;) and those returned, silks, teas, linens, spices, drugs, china and porcelain wares, die stuffs, etc.; then the interest on the capital invested in a ton of merchandize will amount, while making the voyage, to \$30, and the insurance at two per cent.—I have some idea that this is about the rate, though I may be wrong—amounts, out and back, to \$10, to which add \$30, the interest on capital, and \$30 for freight,

and we have \$70 as the charges on a ton of merchandize by the "glancing keel." The rate of interest in England is not so high as I have placed it; but what merchant expects, even there, to make less?

Add to \$63 the freight charges by the Oregon route, four months' interest, or \$10, and one-half the former amount of insurance, or \$5, and we have \$78 as the charges by the Oregon route per ton; or but an excess of \$8. It will not be difficult to see sufficient advantages to result from the latter route to more than counterbalance this, which is equal to but 14 per cent. upon the capital; and the charge of \$78 per ton, but 6 per cent. Compare this with the percentage of freights at present on the heavy articles which compose so much of the commerce between this country, England and Europe, viz: flour \$1 50 per barrel, or 30 per cent.; 35 to 40 cents per bushel for grain, or 33 per cent. on wheat, and 50 per cent. on corn. One advantage alone that would far more than counterbalance the above extra charge of \$8 per ton, would be the certainty with which goods might be looked for at a given time; thus removing the great uncertainty attending that trade, from the fluctuations in the market between the conception of an enterprise, and its completion. A merchant can tell to-day what an article is worth, and can form some conception of what it will be worth three or four months hence; but as the distance in time recedes, the uncertainty increases in a geometrical ratio. It is this that secures to the ocean steamers their freights—together, of course, with the high price of the goods so sent, and the consequent small per cent. upon the cost, after all, of the high charges to which they are subjected.

On looking at the reports on the subject of the commerce and navigation of the country, it will be seen that those articles which compose the bulk of trade between us and the East, are, mainly, those high priced articles which Mr. Derby admits will bear a high rate of transport, some of which I have named above; and it will further appear, a fact that has just met my eye, that I am borne out in assuming the value of each ton of merchandize which passes between the two countries at \$500. In the year 1843, the total of imports from China amounted to \$4,934,000, and it was transported by about 12,000 tons of shipping; which is equal to \$411 per ton value. If we allow for the large amount of stores, etc., carried on these long voyages, it will be seen that I am nearly right. The commerce of China, Asia generally, and the Sandwich Islands, amounts to about 16,000 tons per annum, or 32,000 both ways. This will show what the Oregon railroad can do towards the commerce of Europe, after accommodating our own.

Having already alluded to M. D.'s third objection, I shall offer one or two remarks on his second, and close this article; which has already spun out beyond the limits I had assigned it. This objection is the immense tract of wilderness through which it would pass, affording no remunerating local traffic for many years. This is not a new state of facts as applied to railroads—except the distance—where even a profitable investment is looked to; as take the Vicksburg and Jackson railroad, spoken of by the writer in the Edinburgh Review, as transferred to your columns. This work is about to be extended 200 miles. The immense wilderness spoken of, presents in fact the very strongest argument in its favor. It is the facilities which the railroads alone can afford, that will enable our hardy pioneers to enter upon and subdue it with despatch—and whether or not a remunerating local traffic should soon spring up, would be of little importance, so that it finally

peopled their remote regions; if the through traffic should be sufficient for its maintenance, as it in all probability would.

Still your correspondent's suggestion is doubtless worthy of consideration; and the route he proposes, it cannot be denied, has its advantages. But as we want this railroad for our own purposes—to promote and facilitate intercourse and good feeling among ourselves—to enable us to convert the untrodden wastes to our uses—after all it will appear that Mr. Whitney's plan is the true one.

I trust, Mr. Editor, I have given your correspondent no cause of offence in my objections to his objections. I certainly have endeavored to avoid so doing, as between us of the profession there should be nothing but harmony. But holding an honest difference of opinion, I have expressed it, I hope courteously. Yours very truly. F. P. HOLCOMB.

#### Americans in Russia.

The following extract of a letter from a Philadelphia engineer, now in Russia, and who is a machinist of ability and repute, is going the rounds of the press, from the Philadelphia Enquirer, and we give place to it as containing matters interesting to our readers. It is dated Herald Mechanical Works, Alexanderoffsky, Russia, Nov. 4.

"In the beginning of our operation here, we had very much to do, in organizing this mammoth establishment. We found it greatly in decay and confusion; so much so, that we abandoned all the old tools, and fitted up the establishment anew. We were looked upon by many as wild adventurers, and that we had undertaken to do a vast deal more work than it was possible to do in the time allotted; but at the expiration of our second year, they became convinced, 'that some things could be done as well as others,' and the present it is only requisite for us to say a thing can be done, and all hands knock under. We shall finish this year or the beginning of the next the full complement of trucks, (5300,) and in all of next year, (1847) the 162 locomotives will be finished. We are now driving on with such speed, that we feel no hesitation in duplicating our first orders in 1850. We have limited the number of engines to be out six a month to prevent running out of materials. We have turned out nine a month, and the number for the last six months is 65. In our car shops we are getting on very finely; we have delivered to the government 900 platform cars, and 300 box cars, and are now finishing five box cars every day—they are large, eight wheel cars, 30 feet long. We have not yet commenced on the passenger cars, but have completed the building of a shop for that purpose. The building is 375 feet long by 60 wide, and divided into three apartments, the first for preparing the work, the second for erecting, the third for painting. The number of cars that we have to make is 2000 box, 580 platform, and 70 passenger cars—making the complement for the 5,300 trucks in the first order. Independently of these, we have taken an order for two imperial cars, 70 feet long, to be placed on 16 wheels. We are to receive for these cars, 11,600 rubles of silver each, or \$8,625, without chairs, sofas, or inside trimming. We have undertaken, and now have nearly completed, about 20 miles of the railroad. This we undertook more for our accommodation than profit, so as to have a portion of the road to operate upon.—We have declined making the rest of the road, as it would interfere with our present business.

"We do considerable transient work, and could have much more if we chose to take it. We are now making 7 stationary engines for the interior, and have in hand several heavy orders for bolts and nuts for bridges on the line. This has been a very busy year for me, and our imports have been very heavy, amounting to over half a million of dollars. The number of vessels we have received this year is 85, and there are several more yet to arrive. We have had at times this summer, nearly 3000 men employed, which, together with the foreign business has giving the mercantile department much to do, and to prevent errors occurring, I have been constantly on the alert. All the business with the government has to be transacted by writing."

**The City of Lowell.**

In a recent letter, published in the Boston papers, Mr. Nathan Appleton, of that city, gives the annexed interesting particulars, touching the first undertaking of the now populous and flourishing city of Lowell, Mass. He says:

"As connected with the matter, and as constituting the germ of the present city of Lowell, the following circumstances may be thought interesting. Mr. Patrick T. Jackson and myself had been amongst the original associates who established the Boston Manufacturing company of Waltham, in which the power loom was first brought into successful operation on this side of the Atlantic. The success of that establishment had satisfied us that the time had arrived for undertaking the manufacture and printing of calicoes, and in the summer of 1821 we made an excursion into New Hampshire, in search of a suitable water power.

"Soon after our return, the idea was suggested to Mr. Jackson of purchasing the stock of the Pawtucket canal on the Merrimack river, together with such lands as might be necessary for using the great water power which might be created by its enlargement. He communicated the same to me. After ascertaining that Mr. Kirk Boott was willing to join us in the enterprise, and become the manager and agent to carry it into effect, we proceeded, through trustworthy agents, to purchase the canal, and the most important adjoining lands. It was not until these had been secured, that we thought proper to visit the scene. I well recollect the first visit. It was in the month of November, 1821, and a slight snow covered the ground. The party consisted of Mr. P. T. Jackson, Kirk Boott and myself. We perambulated the ground and scanned the capabilities, and it may be worth recording that so sensible were we of its future importance, that I distinctly recollect one remark made by one of the party, that some of us might probably live to see the place contain 20,000 inhabitants. We proceeded with new associates, to organize the Merrimack Manufacturing Company, with a capital of 600,000 dollars, to which corporation the whole property was conveyed. The enlargement of the canal was finished during the two following summers, and on or about the 1st day of September, 1823, the first water wheel performed its evolutions. The city now contains, I am told, upwards of 30,000 inhabitants.

"I certainly look back with satisfaction upon the part which I have had in leading to this result. I do not say this with any reference to pecuniary interest. I could not say it, did I not conscientiously believe that the introduction of the cotton manufacture has added greatly to the mass of human happiness in those immediately concerned in it, as well as to the aggregate wealth and prosperity of the whole country. I could not say it, did I perceive in the system any tendency toward a relaxation of the moral purity which has ever been a characteristic of our beloved New England. My mind was early turned to a consideration of this ques-

tion. I could never perceive any just ground for the opinion which formerly prevailed extensively, that occupation in manufactures was less favorable to morals than other manual labor. This opinion has, I believe, universally given way before the light of experience. 'Tis the elevation of all labor above the right of a mere subsistence, which gives it character and standing in society, and constitutes the elementary differences between American and European labor. That this elevated position may be strengthened and perpetuated by our institutions, is my ardent wish."

**Kennebec and Portland Railroad.**

The Boston Daily Advertiser—one of the soundest business papers in the country—publishes the following able article on this railroad, with the annexed preparatory remarks:—"We are glad to learn that the enterprise bids fair to be undertaken with energy, and to be prosecuted to a speedy completion. We agree with the writer in the belief that this road promises to be among the most successful works of this nature, for which the country affords an opportunity. It will enjoy the double advantage of passing through a tract of country of large population, collected in large and flourishing villages, and engaged in commercial and manufacturing pursuits, and also of forming a thoroughfare for the travel of a large population residing beyond its two termini. It will form the line of direct connection between the commercial and political capitals of the state—and it will at the same time connect with both of them, as well as with this city, the large towns of North Yarmouth, Freeport, Brunswick, Bath and Gardiner, and it will form a part of the route from Boston and Portland, towards the whole eastern portion of Maine, both by the sea coast route, by way of Wiscasset and Bath, and by the inland route, by way of Augusta and Hallowell."

We understand that at a meeting of the Directors of the Kennebec and Portland railroad last week, in this city, it was determined to put the whole line to Augusta, with the branch to Bath, under contract as soon as the state of the surveys and the season would admit. The subscription to the stock has been largely increased upon the line of the road, within the last ten days, and with the former subscriptions, it warrants the Directors in proceeding with the work as fast as is practicable to do so. It is believed that the road to Augusta can be completed in less than two years; and the expectation is entertained, that by an arrangement with the Directors of the Atlantic and St. Lawrence road to run upon that to North Yarmouth, the road to Brunswick, if not to Bath, may be opened for travel within one year.

This road, when completed, will form an important link in the great chain of railroads leading to this city. The people of the state of Maine are intimately connected with us in all their business relations, and we have a strong interest in the success of an enterprise that will afford facilities for improving and extending this connection. The proposed road runs through and connects all the large towns in Maine on the west side of the Kennebec river, and is in the direct line to all of the principal towns east of that river. The number of inhabitants in the towns through

which the road passes, is as great as on the line of any road of the same length in New England; and in all of the towns the people are engaged in commerce and manufactures, and intimately connected with each other in their social and business relations. This will secure to the road a large local travel, which is found to be the most sure source of profit to railroads. Some opinion can be formed of the travel and transportation that would pass over this road to this city, from the throng of passengers that have crowded the Kennebec boats for the last two or three seasons.

It has been objected to this road that it will have to compete with the boats for a large portion of the year, and thus reduce the amount of its profits. So far as the public is concerned, the only effect this competition will have, will be to insure a low rate of fare, and so far as the stockholders in the road are interested, low fares will yield as much as high fares, where the population is dense and there is an extensive region from which the travel can be drawn. More than three-fourths of the whole population of Maine are within forty miles of the sea coast; and the obvious policy of securing the greatest advantage to a railroad, is to run it through the large towns near the coast, till it strikes the Kennebec river, the centre of the population of the state, and then run up that river to some point where a road would strike off to the east.—This is what this road proposes; and it is confidently believed by the subscribers to the stock in Maine, and by the Directors, that it will be one of the most profitable roads connecting with this city. Some of our large capitalists have subscribed liberally to the stock, and we hope that others, and the business men of the city, who are more immediately interested in this enterprise, will not withhold from it their support.

**English Items.**

**The "Great Britain."**—It appears, says the Mining Journal, that the statement which appeared in our Journal of last Saturday, announcing the abandonment by the directors of all intentions of saving this ill-fated steamer, was incorrect. By a report from Mr. Brunel, (the company's engineer) on her present state, just published, we learn, that "except the parts actually damaged, the extent of which is comparatively small, the ship is perfectly sound, and as good as the hour when she struck. The principal injury is in her bottom, under the boilers and engines. The vessel has been evidently thumping on the rocks, and almost entirely upon this part of the bottom, from the first few days after she grounded—and at present, in all probability, her whole weight is resting on this part; yet, notwithstanding this, she is perfectly straight, and has not broken or even sprung an inch in the whole length. The boilers have been forced up about 15 inches, and one of the condensers has been lifted up about 8 inches, breaking the air-pump. At present, this is nearly the extent of damage done—all of which could easily be repaired if the vessel were in dock." Mr. Brunel considers that there is no doubt that to get the vessel off is better policy than to break her



up where she is, and that the main object is to protect her from the sea.

**The Salt Trade of France.**—We understand, that in consequence of petitions from several large firms, embarked in the Newfoundland fishery, to be allowed to employ, in 1847, the salt of Spain and Portugal, (which the captains could take in on their passage) for the curing of fish, instead of being restricted to that of France—the Minister of Finance has consented, that all vessels now equipping for the Newfoundland fishery, may lay in salt from those countries. This is a great concession on the part of the French Government, itself the chief monopoliser of the salt trade; and it is hoped will lead ultimately to a reduction in the import duties on British and other salt, at present next to prohibited entering France.

**"Gun Tow" applied to Blasting.**—A gentleman, who has been a manufacturer of gunpowder, in the west of Scotland, for the last 20 years, has been successful in several experiments with gun tow and gun sawdust, for blasting purposes. A perfectly satisfactory trial was made, on Tuesday last, (through the politeness of Mr. McCallum, at the Lady Mill Quarry, in the presence of Professor Penny, and a number of other scientific gentlemen. One of the experiments was with a bore of 3 ft. 4 in., and  $2\frac{1}{2}$  diameter, charged with 11 ozs. tow and cotton, mixed, (4 lbs. gunpowder would be required) and which brought down about 13 or 15 tons in weight—the effect is represented as "splendid."

**New Locomotive.**—Mr. Galloway, it is stated, is now trying an experiment on the Great Western Railway, at Maidenhead, up an incline of 1 in 19, from the road below to the station above, with a new species of locomotive. The principle is to do away with the driving wheels altogether, and to connect two horizontal wheels, instead of the driving wheels, with the pistons. These wheels run before, and press the opposite sides of a rail between the other rails by means of leverage gear; and, from their bite on that rail, they produce the traction of the train in lieu of the driving wheels. It is said, that an engine of this kind has drawn 30 tons readily up the incline mentioned.

**Antimony Mine in Scotland.**—It was announced, some time ago, that a rich mine of antimony had been discovered on the estate of the Marquis of Bute, in the parish of Cumnock. It has now been wrought for some time, and is giving employment to about a dozen hands, and is in every way likely to turn out profitable to the noble proprietor. The difficulty of access to it—the mine being situated on the top of an eminence called Harehill—is attended with considerable expense.—*Kilmarnock Journal*.

**New Locomotive.**—On Monday, one of the largest locomotives ever constructed for the narrow gauge, was taken from the foundry of Messrs. Bury, Curtis and Kennedy, to the railway station in Crown street. It was drawn by 17 horses, and seemed to attract much attention. The engine has six wheels,

coupled, the diameter being about 5 ft. We learn that several locomotives are in course of construction at this factory, which will have wheels of 6 ft. diameter, and a larger stroke of piston than usual, by which the speed will be much increased.—*Gore's Liverpool Advertiser*.

**The Tin Trade.**—Although the price of iron is good, and an advance daily expected, yet the tin trade is in a somewhat depressed state. Where formerly 1200 boxes were made in a week, now scarcely 800 are completed; consequently, the operatives work but two thirds of their time. Various reasons are assigned for the deficiency in general orders; but, as we are not conversant with the right one, we cannot offer an opinion.—*Monmouthshire Merlin*.

**Cymbrain Boiler Plate Company.**—We hear that this company, whose works we noticed favorably in a recent number, have already received extensive orders for plates; and, amongst others, from Messrs. Fairbairn and Sons, of Will Mall, London, iron shipbuilders of first rate eminence. Mr. W. Fairbairn is, we believe, the gentleman whose experiments, in relation to the tubular bridge over the Menai have excited so much attention lately in the engineering world.—*Monmouthshire Merlin*.

**Coal in Nova Scotia.**—The General Mining Association are about to open a new coal mine in Cumberland county. This establishment will supply New Brunswick, and the Nova Scotian ports in the bay of Fundy, and will shorten the distance for the coal vessels from the United States. The coal is said to be of excellent quality.

**Irish Railways.**—The Board of Works has given its sanction to the full amount of the presentation, for £16,000, to the Waterford and Limerick Railway at Cahir sessions, and West Ifla and Offa barony will be enabled to afford employment to every man therein in want of it.

**French Railways.**—The Minister of Public Works, has just nominated a commission to report on the experiments commenced on the Sceaux Railway, constructed after a system of curves of small radius and worked by articulated carriages. The commission is also to report on the proceedings of the atmospheric railway established from Nanterre to St. Germain.

#### Maine Railroads.

A writer in the Boston Courier, who seems to be acquainted with the railroad interest in New England, gives the annexed particulars in relation to the roads, in Massachusetts, New Hampshire, and Maine, which will prove interesting at this time.—The railroad "fever" is at a high pitch in the eastern country, and the people in that section, are very busy just now with the subject. The Courier's correspondent says:—

Since Maine has been re-annexed to Massachusetts by the iron bonds of the Eastern and Maine railroads, the citizens of Massachusetts, and of Boston in particular, are interested in the extension of these railroads, in the state of Maine. I would, therefore, ask for so much space in your columns as may

be necessary briefly to inform your readers of the several railroads projected in Maine.

The Portland, Saco and Portsmouth railroad, uniting at South Berwick with the Maine, and at Portsmouth with the Eastern railroad, is the only road now extending from Portland, west. A charter, however, was granted at the last session of our Legislature, for a railroad from Great Falls, at the New Hampshire line, through Alfred, Buxton, and Gorham, to Portland, which, if constructed, will make two separate roads from Boston to Portland, although the way business on part of this new route would be considerable, yet it would seem almost a waste of capital to build both roads, when as the public suppose, a little mutual concession on the part of the present Directors of the upper and lower routes, one road, from Berwick, might accommodate all parties. If the contemplated upper route is built, it must materially affect the stock of the Portland, Saco and Portsmouth, and also of the Eastern railroad.—The upper route would avoid the long bridges and the ferry on the lower route. A survey of this upper route has lately been made, at the expense of the Maine railroad corporation; but it is doubtful if the road can be built at present, without the aid of the Maine railroad.

East of Portland, the Atlantic and St. Lawrence railroad, connecting Portland with Montreal, Canada, has been located and let to contractors as far as Danville, a distance of 30 miles. About 15 miles is already graded, and as the work on the remainder is progressing this winter, the road will be ready for the rails early in the summer, and the cars run as far as Danville before next winter.

Additional sections will be put under contract in the spring, and this road will steadily progress until it meets the Canadian part of the work at the line. They have about the same number of miles under contract on the Canadian side, extending eastwardly from Montreal.

This road will form one of those connecting links between the Atlantic and the great west, which Washington's comprehensive glance was, we believe, the first to suggest.

In conversing with a western gentleman, well acquainted with the business of this fruitful section of the Union, which Portland, Boston, New York, Philadelphia and Baltimore are all striving for, he remarked that there was no cause for any jealousy between these respective cities in relation to this trade, for that by the time they had completed their various channels of communication, the products of the "mighty west" would be so increased, that all would find as much business as their respective lines could accommodate.

**Rotary Steam Engine.**—Mr. A. Buffum, a member of the "National Association of Inventors," of this city, has made a discovery in rotary engines which he thinks will take the lead of all others. Mr. B's plan has the merit of simplicity, and looks as plausible as any plan for a rotary can. He expects to be able to furnish a ten horse power engine for \$50, and one that will not occupy more than two square feet of room.—*Eureka*.

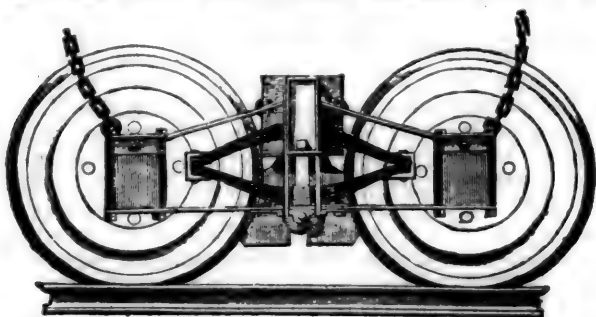
**New Grist Mill.**—We have been shown, says the Eureka, the model of a mill, invented by Asa Barber, of Stephentown, Rensselaer county, N. Y., and now the subject of a pending patent. It acts upon features truly novel. The grinding is effected by first cracking the grain, when it is passed to another chamber, where it is reduced still more. It may then, if not sufficiently fine, be returned to the crushing apparatus as often as it shall be required so to do, to produce good flour. The machinery consists of a peculiar fluted cylinder which operates upon a concave bed of furrows or grooves. Mr. B., who is a member of the "National Association of Inventors," promises that we shall fully describe his mill, with engravings, at a subsequent time.

**Computing Machine.**—We have seen a machine for computing figures by any of the rules of addition, subtraction, multiplication or division. It operates in the most simple manner, and is equally simple in its construction. This is the invention of a Pole, by the name of Slonimski, who received very large presents from the emperor of Russia, for his invention. We can say of our own knowledge that this is an excellent machine, and can do any sum in those rules with great speed and accuracy. Mr. S. has assigned his claim to a patent right in the United States, to Mr. S. J. Neustadt, of this city who is applying for, and will probably obtain the same. The machines may be made and sold for from \$3 to \$10 each.—*Eureka.*

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2. [11f] 68 Broad St., New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address  
SAML KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.  
41f

**NOTICE TO RAILROAD CONTRACTORS.**  
PROPOSALS will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.  
For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

THOMAS WEST, President  
Boston and Maine Railroad.  
January 22, 1847. 31d

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.

J. W. BROOKS, Supt. & Eng.  
Detroit, January 5, 1847. 51d

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 4 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 4 " Flange Iron Rails. 75 " 1 x 4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
FULLER & BROWN, Agent,  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10d39

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
ja45 Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
79 Water St., New York  
29d

**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glenoid,  
Spring Mt and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAML KIMBER, & CO.,  
59 North Wharves,  
Philadelphia, Pa.  
Jan. 14, 1846. [14f]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845. }

1719

Supt Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GORRIS & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CHRONKITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 3d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 130 Meeting street Charleston, S. C.

16 if

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 145 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 922 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

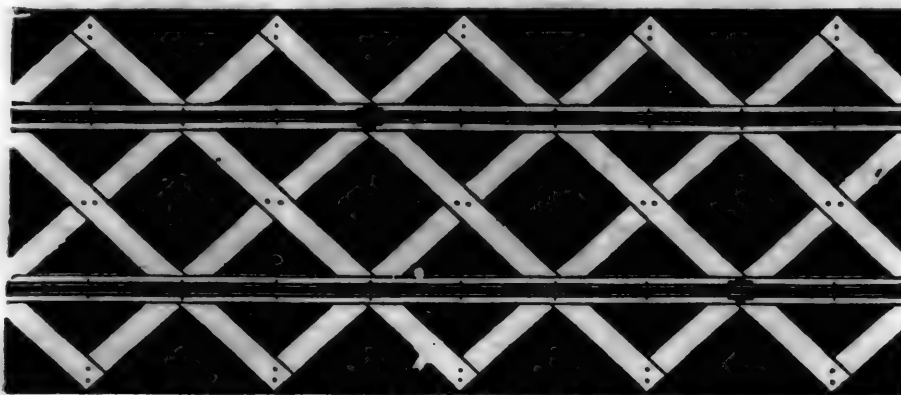
ja45

**DAVENPORT & BRIDGES CONTINUE**

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of the trestle for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestle is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestle, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestle for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,994 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 331f

# ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-3	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,  
below Walnut,  
Philadelphia.

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,  
Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,  
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1y48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.  
Nov. 16, 1846.

461f

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 6.]

SATURDAY, FEBRUARY 6, 1847.

[WHOLE No. 555, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.  
31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½ and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1 y 31 CHAS. MINOT, Sup't.

## THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

31 ly Sandusky, Ohio. B. HIGGINS, Sup't., etc. M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 31 ly J. W. STOWELL, Sup't.

**TROY RAILROADS.—IMPORTANT NOTICE.**—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a.m. and 4½ p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

#### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

#### TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

#### BALTIMORE AND OHIO RAILROAD.

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 33 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 a. night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the line North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13y1

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

#### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati.

O. Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance.....56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance.....88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.....65 "

TIME.

From Buffalo to Sandusky.....24 hours.

Leave Sandusky 5 a.m. to Columbus.....14 "

From Columbus to Cincinnati.....15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....\$6 00

" " " Steerage.....3 00

" Sandusky to Columbus.....4 50

" " through to Cincinnati.....8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Supt., etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

#### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 3 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 40, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y 29

#### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3½ p.m. Arrives at.....9 a.m. and 6½ p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12½ p.m. and 8 p.m. Leaves York for Columbia at.....1½ p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

#### FARE.

Fare to York.....\$1 50

" Wrightsville.....2 00

" Columbia.....2 12½

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9

Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg.....3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5½ p.m.

Returning, leaves Owning's Mills at.....7 a.m.

D. C. H. BORDLEY, Supt.

31 1y Ticket Office, 63 North st.

#### LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

#### SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

#### CENTRAL RAILROAD-FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)..... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

440 Gen'l. Supt. Transportation.

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plate No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 3y191y



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings..... \$0 50 To Atlanta. \$0 75 To Oothcaloga.  
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones..... 0 50 0 62½  
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot..... 0 20 0 26  
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot..... 0 20 pr. 100 lbs. 35  
Crockery, per cubic foot..... 0 15 " 35  
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50  
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each..... 1 25 1 50  
Ploughs, (small,) and Wheelbarrows..... 0 80 1 05  
Salt, per Liverpool Sack..... 0 70 0 95  
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street, Philadelphia, Pa. 1y35

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenauna River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 150 miles.	Between Charleston and Oothcaloga, 136 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75	1 37	

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,  
E. cor. 13th and Market sts., Philad., Pa. 1y

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Port Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon...\$1 00  
" " " Xenia..... 1 50  
" " " Springfield.. 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47½ W. H. CLEMENT, Sup't.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
2½ Engineer and General Superintendent.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address  
JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x30 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 30 feet wide.

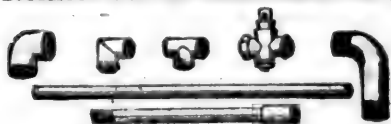
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

#### WELDED WROUGHT IRON TUBES.

From 4 inches to 4 ft in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 1500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**PATENT INDESTRUCTIBLE WATER Pipes.** The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

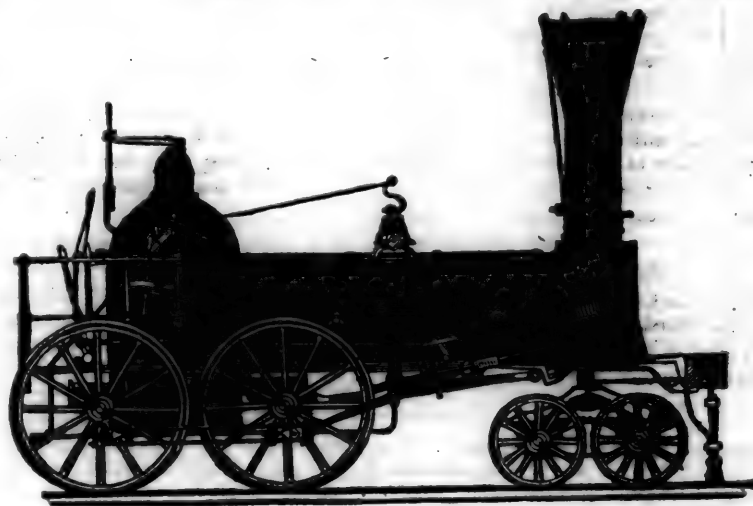
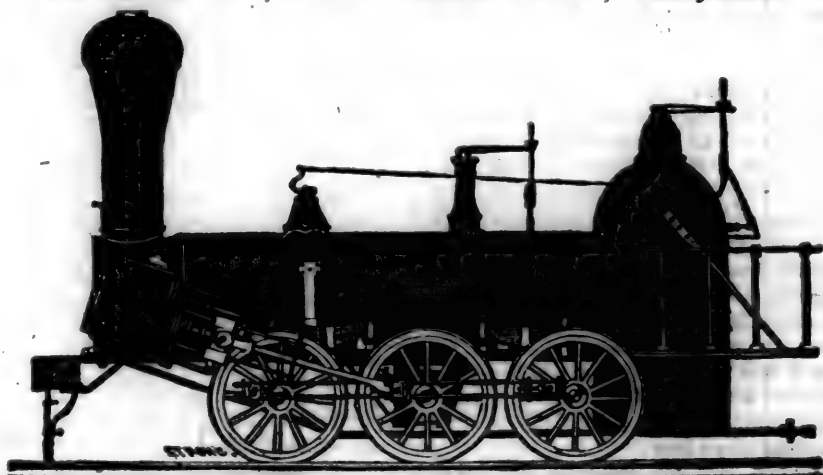
28th J. BALL & CO.

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14½	"	"	× 20	"
" 4,	12½	"	"	× 20	"
" 5,	11½	"	"	× 20	"
" 6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by  
A. & G. RALSTON

Mar. 30th 4 South Front St., Philadelphia.

**KEARNEY FRIE BRICK.** F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Boat and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.



## State Works of Ohio.

The Columbus correspondent (probably one of the Editors) of the Cincinnati Gazette—in a late letter—gives the following account in relation to the Internal Improvements and Public Works of the State of Ohio, which will be read with interest. The writer says:

In the absence of any proceedings of interest in either House, I have devoted considerable time to an examination of the finances of our Public Works—deriving my details from the very interesting Report of the Board, and from such other sources as were necessary. They are in fact the financial barometer of the State, our tax roll increasing or diminishing with the receipts from our Canals. It is a well known fact that more money has leaked out at the Treasury through those charged with our public improvements, than wasted by breeches—and we have Governor Marcy's authority for saying the latter are something of an item.

The first fact cognizant by the report is this—a reduction in the expenditures and an increase in the receipts. This is cheering—for since 1840, with an increased line of Canals and a greatly increased debt, our receipts have been growing beautifully less. Four hundred and twenty-two miles of Canals, with over nine millions six hundred and fifty thousand dollars of debt, added from 1836 to 1840, and yet forsooth a decrease in receipts from the very year the people hoped to find some relief.

## EASTERN DIVISION:

Comprising the Ohio, Walhoning, and Hocking Canals, Muskingum Improvements, and Eastern part of the National Road, is under the superintendence of Jacob Blickensderfer, Junior.

## Ohio Canal.

Receipts from Tolls, Fines and Water-rents.....	\$336,339 69
Disbursement for same period.....	69,371 50
Nett receipts.....	\$266,968 19
Increase of Tolls, &c., over last year..	\$75,970 36
Decrease of expenses do ..	47,967 34

Nett gain ..... \$123,937 70

The repairs, it appears from the Report have been extensive, and several substantial and economical improvements introduced, as substituting cast iron arches in place of decayed stone culverts.

Cost of the Ohio Canal, including branches.....	\$4,695,903 00
Interest on same, do. do.....	281,712 18
Nett receipts, do. do.....	266,968 19

Our first work of Public Improvement promises well. It has no foreign carrying trade—dependent entirely upon its own resources. Besides, the increase from tolls on the cereal product, which, as the country improves, will be greatly augmented, it has other sources of revenue in the immense beds of iron and coal in the north eastern part of the State, with water power on the spot. The miserable policy of opening the sluice-ways for the pauper labor of Europe can alone retard their proper development.

The table annexed is an interesting one, showing that the export exceed the import as 5½ to 1; wheat and flour constituting 3-7 of

the former, and the coal trade 1-7 of the entire business of the canal.

Articles.	Cleveland.		Portsmouth.	
	Arrived	Cleared	Arrived	Cleared
Wheat and Flour.....	89,886	186	4424	771
Coal.....	29,782	207	4424	788
Corn.....	156,20	132	3752	788
Pork, Bacon and Lard,	8198	25	8790	23
Iron (all kinds) & Nails,	7377	642	42	3967
Lumber.....	2408	5987	315	86
Salt.....	2408	8830	27	876
Merchandise.....	1140	5293	358	3143
All other articles.....	33190	5649	9344	1768
Tons.....	187601	27151	27054	11422

## Hocking Canal.

Receipts from Tolls, Rents and Fines..	\$5,383 54
Disbursements for Superintendence, &c.	3,651 13

Cost of the Hocking Canal.....	\$1,739 41
Interest on same.....	\$975,481 01
Receipts on Running expenses.....	58,528 86
There is an item of \$1,050 13 in the Report, which belongs to construction account, and of course not included in the estimate of the profit and loss of each work.	1,732 41

There is an item of \$1,050 13 in the Report, which belongs to construction account, and of course not included in the estimate of the profit and loss of each work.

## Walhoning Canal.

Receipts from Tolls, Rents and Fines..	\$1,190 70
Disbursements for Superintendence, &c.	1,383 54
Cost of Construction.....	\$607,268 99
Interest on same.....	36,436 13
Excess of Expenditure over Receipts..	122 84

There was a decrease in the disbursements this year over the last, of \$1,754 07; receipts were less by \$92 25. There was not a supply of boats for the business.

## WESTERN DIVISION:

Consisting of the Miami and Warren county Canal, Miami Extension, and Wabash and Erie Canals, Western Reserve and Maumee Road, and Western Division of National Road, under charge of the veteran Forrer.

The Miami and Extension, with the Wabash and Erie, should properly be considered together, as tolls are received at Cincinnati and Toledo for all through freight, which makes the central portion appear to great advantage. As there is some local interest with your readers in the first, it is separated.

## Miami Canal.

Receipts from Tolls, Rents and Fines,	\$93,057 28
Disbursements for large Repairs, Superintendence, &c.....	54,344 99

Nett Receipts.....	\$38,712 99
Increase in Receipts over last year..	15,813 50
Cost of Construction of Miami and Warren Canal.....	\$1,237,552 00
Interest on same.....	71,253 00
Nett Receipts.....	38,712 99

The expenses for repairs were unusually heavy, and the Canal had been so long neglected as to render it difficult of navigation, by being filled up with sand and mud. To clear it was a very large item. It was also obstructed by ice forty-nine days, and nearly a month lost by breaks, which would not have occurred, if it had been kept in proper order.

## Extra Expenses.

Hamilton and Cincinnati Culvert.....	\$7,314 17
New Tumbles, Bridges, &c.....	2,062 24
Removing the Deposits.....	22,000 00

Add nett Receipts as above.....	\$31,776 41
	38,742 00

\$70,518 41

This would exceed the interest account by \$7,888 00. Including Warren county Canal, is adding \$200,000 to the cost, and not a cent income.

## Miami Extension and Wabash Canals.

Cost of Miami Extension from Dayton to mouth of Loramie's Creek.....	\$436,750 60
Loramie's Creek to north end of Deep Cut.....	1,379,267 32
Deep Cut to junction of Wabash and Erie Canals.....	323,500 00
Cost of Sydney Feeder.....	392,258 32
" " Mercer County Reservoir.....	528,222 07

Cost of Construction.....	3,059,996 31
Damages, Hydraulic Sites, &c.....	108,967 28

	\$3,168,965 59
Cost of Wabash and Erie Canal....	3,057,177 94

Cost of Miami Extension and Wabash and Erie Canals.....	6,226,142 83
Receipts from Miami Extension.....	27,812 90
" " Wabash and Erie Canals....	113,414 59

	\$141,227 49
Disbursements on Miami Extension..	19,100 88
" " Wabash and Erie	

Canals.....	8,135 10
	\$27,235 96

Interest on the united cost of both Works.....	\$373,568 52
Nett Receipts on the same.....	\$113,991 51
There is an item in the Report of \$29,301, which belongs to Construction account.	

If no untoward accident occur the coming season, these Canals, united with the Miami, will show a favorable account. The miserable manner the wooden locks were constructed, proved a constant source of annoyance to shippers, and loss to the State. By the indomitable perseverance of Mr. Forrer they were kept in navigable order, and are now in good condition.

Mr. Forrer gives very encouraging assurances of the truth of the above, as the extract annexed will show. He further adds that the amount of corn shipped from Toledo to Cleveland—one and a half millions of bushels—is about the same as the official report of the total received in Albany. The reduction of tolls for through freight tended materially to bring the carrying trade on this route, which another season will more fully develop.

"Flour has increased 40,333 barrels, pork 10,362 barrels, wheat 98,603 bushels, candles 39,918 lbs., tobacco 546,961 pounds, bacon and pork in bulk 1,054,810 pounds. The aggregate of lard, pork and bacon, in barrels and bulk, received at Toledo, amounts to twelve millions seven hundred and sixty-six thousand one hundred and ninety-one lbs., exhibiting an increase this year in the item of lard alone, of 3,015,168 pounds. Corn has increased from 30,037 bushels in 1845, to 1,135,946 bushels this year, showing an increase considerably exceeding a million of bushels. The amount of merchandise shipped on the Wabash and Erie Canal at Toledo, shows a total of 10,595,087 pounds, exceeding a trifle the amount shipped on the Ohio Canal."

There is one consideration necessary to be borne in mind. The collectors on the Canal, though appointed by the Board of Public Works, have nothing to do with it in their

account. They are in fact the Auditor's agents for the collection of the revenue, and accountable only to him—thus forming a salutary check. But still their salaries, overcharges, if any, are deducted from the amount received from the canal proceeds. This will explain any slight discrepancy in the Auditor's aggregates and that of the Board. I make this explanation as perhaps not generally known.

In my next the roads in charge of the Board of Public Works will be alluded to, as well as some matters connected with the lands donated to the State.

Statement of Length, Cost, Receipts, Deficits, etc., of the Ohio Canals, for 1846.

	Length, Miles.	Total Cost.	Cost per Mile.	Gross Receipts.	Net Receipts.	Interest or Cost of Each.	Deficit.
* Ohio Canal and Branches	337	4,965,203	13,932	346,339	266,986	281,712	14,743
Muskingum Improvement..	91	1,627,314	17,882	35,104	97,840	97,840	97,840
Walshoning Canal.....	25	607,268	24,290	1,190	36,436	36,436	36,298
Hocking Canal.....	56	975,461	17,419	5,383	58,528	58,528	56,796
Miami and Warren Canal..	85	1,237,552	14,559	93,057	38,712	74,253	35,541
Miami Extension Canal..	139	3,168,965	22,796	27,812	8,712	190,137	181,425
Wabash and Erie Canal..	90	3,057,177	33,968	113,414	105,379	183,430	78,151
Totals.....	821	\$15,268,964	Av. \$18,719	\$612,303	\$421,404	\$922,137	\$501,136

\* The Ohio Canal has 27 miles of Side Cuts and Feeders—to wit: Trenton feeder 3 miles, Walholding 14, Dresden Side Cut 24, Granville feeder 6, Columbus 12—which are included in the estimate.  
† This includes the Sidney Feeder, 13 miles, St. Mary's and Reservoir.  
‡ The Wabash and Erie has a Side Cut to Maumee, 2 miles, included in estimate, and one to Toledo of 1 mile, which was not observed until too late to be rectified.

The net proceeds fall a fraction short of three per cent. interest on the total cost. Interest estimated at six per cent., which would be about the average—first loan at five, the last at seven—balance at six.

#### Further Extracts from English Papers.

**Dublin and Holyhead Packets.**—The Dublin and Holyhead Railway Company are about to build four iron steam-packets, to run to and from Dublin, in conjunction with the railway. They are to be of first-rate designs, and in order to encourage competition, and secure good vessels, they have most liberally determined to offer a premium of £1000 to the builder of the boat which, in the course of 12 months, makes the quickest passages, with the smallest amount of repairs.

**Railway Calls.**—The amount of calls, payable on English Railway stock during January, amounts to £4,399,456; and on fo-

reign lines, £1,271,000, one-fourth or £317,750 of which, it is calculated, will be paid from England: making a total for the month of £4,717,206.

**Railway Traffic Returns.**—From these returns, it will be seen, that the amount of traffic for the last week, on nearly 2760 miles of railway, was £129,656, thus accounted for: £64,434 for the conveyance of passengers only, £37,287 for the carriage of goods, and a remainder of £27,844 for passengers and goods together, not respectively apportioned: being an increase over the corresponding week of last year of £13,494.

**Cornish Steam Engine.**—The number of pumping-engines reported for the month of November, is 24; the quantity of coals consumed being 1471 tons, lifting, in the aggregate, 14,000,000 tons of water 10 fathoms high; the average duty of the whole is, therefore, 53,000,000 lbs. lifted 1 foot high, by the consumption of a bushel of coal.

**New Locomotive Mechanism.**—A working model of a new plan of railway locomotion has been exhibited in London, with a view as stated, to the adoption of means for securing the great objects at which railway enterprise aims, namely, safety to human life, certainty of action, and economy in construction and working. By the new plan, the carriages are proposed to be built upon platforms which will glide on the peripheries of parallel lines of wheels, mounted on chains, stanchions or piles, rendering rails and bridges unnecessary. An immovable rope or chain forms a fulcrum, against which the motive power is to be applied. The rope or chain passes round a drum fixed on a travelling platform, the drum being set in motion by a small engine fixed on either side of it, on the platform, underneath which ribs, or flanges, about a foot in depth, make it difficult, if not impossible, for it to get off the wheels. The line of traction being invariably in the middle of the road, it is contended that no probable cause of accident can occur to disturb it, and that it will avoid the great danger incident to railways from the breaking of an axle, a wheel, or a rail, or from a sharp curve. An experimental road, of about a mile in length, is to be constructed near the metropolis.

#### Mr. George Stephenson's New Locomotive.

—We some months back mentioned, that Mr. George Stephenson, C. E., had invented a three cylinder engine, that is, one with two outside cylinders acting both together the same way and in the same place, and a third cylinder, with a crank in the middle of the axle, at right angles to the plane and crank pins of the two other cylinders. The middle cylinder is double the capacity of either of the other two. We understand that the compensation by this middle cylinder is so perfect that not the least wriggle takes place at the highest velocities. Its power is said to be such, that it starts off like an arrow from a bow. If this invention succeed, it will annihilate the last and final point contended for by Mr. Brunel as a merit of the broad gauge, that is, power. Far more pow-

er will be able to be thrown into the engine, than any road can well bear.

**Indian Railways.**—The following, we learn from the "Times," of Thursday, are the conditions upon which the Board of Control and the Directors of the East India Company have at length decided upon giving their sanction to the introduction of railway communication into British India.

1. The Direct Trunk, or East India line, is adopted.

2. This line (which connects Calcutta with the North-west Province) is to be constructed in sections.

3. The Government guarantee 4 per cent. to the Shareholders.

4. The amount guaranteed is fixed at £3,000,000 to commence with.

5. The section out of Calcutta to be first executed.

6. The guarantee to extend over 15 years.

7. The rates of payment to be made by the Government for transport of mails, troops, stores, etc., to be agreed upon hereafter.

8. The interest to be received either in India or in London, at the option of the Shareholders, as soon as £500,000 is paid into the India House.

9. The land to be obtained by the Government for the Railway Company.

10. Government to have the privilege of purchasing the railway, after 30 years from the date of its completion, at the then fair market value of the property.

11. No limitation is to be fixed to the profits of the Company, but the rates of charges are to be reduced when the returns admit of it.

12. It is also understood that no rates or tolls will be assessed upon the Railway Company, and that the import duties on the stock and materials for the railway will be remitted.

13. The Company to be incorporated by an Act of the Legislative Charter, as well as by Charter.

These terms show that the Indian Government are fully sensible of the great benefits which railways will confer on India, in military and commercial respects, and their readiness to hasten their introduction, by giving all the encouragement and assistance that they are able to afford. Certainly more liberal conditions railway promoters could scarcely expect.

**The Snow and the Rail.**—On Tuesday night, at six o'clock, the express train on the York and Newcastle Railway left Darlington, being about an hour and a half behind its usual time, having been detained by the depth of the snow. The road was heavy all the way, and an additional engine was put to at Belmont; but there was no stoppage caused by the snow till they reached Washington, which they did about eight o'clock. At Washington station the train stopped half an hour, and it being reported that the line was passable, it proceeded; but it had not gone more than half a mile when it was brought to a stand-still. The engine-men and stokers who were prepared with shovels, partially cleared away the snow which had drifted in



the path of the engines, and the steam was again put on. Another half mile was got over; but further progress was found to be impracticable. The snow drifted round the carriages with such rapidity, that in a very few minutes it was found impossible to move them either one way or the other, and the snow gathering around the engines, soon extinguished the fires, and rendered all attempts to self-extrication hopeless. In this dilemma what was to be done? Two gentlemen, second-class passengers, determined on walking onward through the snow; and away they went, steering in the direction of the telegraphic wires. As they have not been heard of since, it is probable they succeeded, after many difficulties, of course, in reaching their destination, wherever it was. One gentleman, returning from the hymeneal altar, having been married but a few days previously in London, and was bringing home his bride, suggested to his *cara sposa* the expediency of returning to Washington, where a comfortable bed might be found more convenient for repose than the interior of a railway carriage, and the suggestion having been approved, the adventurous pair essayed the difficult and dangerous task. There were other ladies in the train, which comprised fifteen passengers in all, including the two that had already departed, but none thought proper to imitate her example. Five gentlemen escorted the bride and bridegroom, leaving behind them in the train three ladies and three gentlemen, who remained there till noon on Wednesday, when they also repaired to Washington, under the guidance of the engine-drivers, leaving Donaldson, the guard of the train, alone. All parties reached Washington in safety, and found comfortable accommodation at the inn near the station, and at the village in its vicinity. This is, perhaps, the first instance on record of a railway train having been buried in the snow.—*Chronicle*.

**Eastern Counties vs. Eastern Union Railways.**—The Directors of the Eastern Union Railway have lately placed on their line second-class carriages of a greatly improved construction, and in which the comfort of the passengers has been studied in a manner worthy of imitation. They are enclosed with glass, and the seats are of stuffed leather, and they altogether approximate much nearer to the English elysian—Comfortable, than those in general use. But, unfortunately, the Eastern Union authority extends only sixteen miles of the sixty-six between Ipswich and London; and on Tuesday a peremptory order from the *magnates* of Shoreditch was received at the Colchester station that the new Eastern Union second-class carriages should not be suffered to proceed beyond Colchester. The passengers were accordingly obliged to resign their warm seats in the Ipswich carriages, and locate themselves in the Eastern Counties Railway tumbrels for the remainder of the journey.—*Essex Standard*.

[We shall feel obliged by the Eastern Counties authorities informing us whether the above is true. Ed. "H. R. J."]

**Good!**—Lord George Bentinck, at Hudson's festival at York, made so good a speech

on Railways, that it merits registration in our columns. He observed.

It has been said by the great Minister of France, that railways, next to the art of printing, have been the most powerful instruments that the ingenuity of man ever devised for the civilization of the world. And if my right hon. friend cannot claim for himself the invention which he has carried out, at least he can claim, more than any other man in the world, that he has carried that invention into practice. Who is there here that does not feel the advantage which the invention of George Stephenson, carried out by George Hudson, has produced? We all remember the state of distress that cast a gloom over the entire empire in 1839 and 1840. 40,000 able bodied laborers were in the workhouse, the revenue was falling off, and there were 1,500,000 paupers upon the poor rate. Railways were at a discount. My right hon. friend stepped forth, and set a noble example. He roused the talent and dormant energies of his countrymen—he urged them to action—and it is owing in the greatest degree to his exertions that railways have been since constructed, which are daily giving employment to 200,000 laborers, at wages averaging 22s. 6d. per week. Hence the prosperity of the last few years. But that is not all. We have heard to-day what the city of York has gained in the article of coals alone. We hear much of cheap justice at every man's door, but, I think, at this inclement season of the year, when winter has laid her frosty hand upon the earth, we must all feel that cheap fuel for the poor man's hearth is at present a far greater blessing than any other that can be conferred upon him; and it is to my right hon. friend that the poor of the city of York are indebted for the blessing. Where they once paid, as I have been told, 16s. 6d. per ton for their coals, before railways were established, they now pay 6s. 6d. The advantage also extends to the rich; and here we are to-day from London, having breakfasted there by daylight, and been brought in daylight too, for a less sum of money than a few years ago it would have cost us to have paid our post boys and turnpike tolls on the road. But then we are told that my hon. friend seeks nothing but his own profit. Why, who but the most niggardly minded men can do otherwise than rejoice at the splendid fortune he has achieved? Talk of commerce or enterprise without profit! Why, profit is the aliment—profit is the very breath of enterprise and commerce. Deny to commerce and enterprise her just profit, and few years will elapse before the enterprise of England will subside; and instead of being at the head we shall be at the tail of all the nations in the world. Most intimately allied, inseparably blended with the enterprise of my hon. friend is the great inventor who honors us with his presence to-day; one whose name will live in the pages of history, when the names of warriors and of kings; unless it is of him who stands beside me; shall have passed into oblivion. Not at this day only, but in all time to come, the name of George Stephenson will be remembered and honored. It will be

revered by him whose lot it is to labor, and who obtains his fuel cheap. It will be remembered by every farmer whose corn is carried to market for him at 4s. to 5s. per quarter less than before. It will be remembered by every merchant and every commercial man who profits by the invention of railways. It will be remembered by every country that has an army to be paid to keep the civil peace, for we have been told that railways have in this country made a little army do the work of a great one. I think, then, when we look at all these things, we must agree with the Minister of France, that the art of printing alone surpasses the invention of which George Stephenson is the great author. His lordship concluded by proposing the health of "George Stephenson, Esq."

**Forth and Clyde Canal.**—From the half yearly abstract statement of this company's affairs, says the North British Railway Journal, has just been issued, we observe the surplus revenue for the six months ending 30th September, amounted to . . . £26,539 12 7 and the previous balance on

hand to . . . . . 3,169 7 9

Leaving . . . . . £29,707 0 9 applicable for a dividend of £3 per share under reduction of income tax. After paying the dividend, the balance on hand is £2,174 0s. 4d., in addition to the sum of £9,910 6s. 11d. returned by the Edinburgh railway company, after the abstract statement had been made up. Regarding this sum, the report states, that "it ought not to be dealt with by the present meeting." The report then proceeds—"But it must be satisfactory to learn that there will be so considerable a surplus in hand, after paying the present increased dividend as to maintain the independent position of the company. The attention of the proprietors is called to the fact that, although the more prosperous state of the company's business is owing, among other things, to the amicable understanding entered into by the railway, a considerable portion of it has arisen from a more complete development of their own peculiar resources, which the council have at former times ventured to predict would take place, and which they venture to say will still further be extended—observations justified by the fact that the trade in the Forth and Clyde canal in the half year exceeds by 80,000 tons that of the same period of last year, and that it had increased from under 400,000 tons in the year 1837, to above 900,000 in 1845; and that in the present, it will exceed a million of tons."

**Railways and the Fishing Trade.**—A correspondent of the Newcastle Advertiser from North Sunderland says: "Scarcely any class begins to feel the benefit of railways more than fishermen do. The demand for fresh fish of all kinds has increased so much of late, that when on a visit the other day at Cullercoats, I was present when a merchant agreed to give 21s. per score for all the cod caught at that place during the winter." This is at least 300 per cent more than can be obtained by the fishermen of Wick for the same commodity.

**Passengers on the Blackwall Railway.**—In 1842, 2,200,000 passengers were carried, and in 1845, 3,200,000. In 1846 there will be, it is estimated, 3,500,000. On last Good Friday there were 10,000 people backwards and forwards to Gravesend. Four-fifths of the pleasure passenger traffic on this line are from the east of Waterloo bridge.

The Railway Chronicle, of December 26, says that, "From our official returns it appears that the amount of traffic for the last week, on upwards of 2760 miles of railway, was 131,141, thus accounted for: 66,054 for the conveyance of passengers only, 36,557 for the carriage of goods, and a remainder of 28,530 for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of 14,892."

The Stour Valley is to be leased to the Eastern Union and Bury St. Edmunds. The terms are 4½ per cent. on the capital to be expended, and a division of the profits after that sum.

Mr. Wyndham Harding, the secretary of the Buckinghamshire lines, has been presented by the Institution of Civil Engineers with the Telford Medal (of the first class) for his paper "On the Variation of the Resistances to Railway Trains at various Velocities."

Railways, while they are the ready means for the conveyance, are thought, anomalously enough, to be instrumental in the diminution of sheep, if we may believe Mr. Waddington, M.P., who, at the West Suffolk agricultural dinner, is reported to have said, "He was afraid that the sheep of the country were very fast diminishing. What was the reason for this diminution he could not make out, unless it was that many of the laborers were employed on the railroads at good wages, that they worked very hard, and required greater sustenance than formerly, and that they had caused an increased consumption of mutton."

**Compensations. Gt. Southern and Western, Ireland.**—The verdicts at the court of inquiry, held at Thurles, into the land owners' claims, seems to have produced the desired effects. Amicable settlements have been since rapidly accomplished. In the case of M. Carroll and J. Tracey, who claimed compensation in respect of 2 roods and 18 perches of tillage land, part of a farm which the claimants held as tenants in common, the amount claimed was 60, the sum offered by the company was 46; the jury found a verdict for 34. 8 9. The next case was that of P. Whelan, who claimed in respect of 1 acre 1 rood 20 perches; the sum demanded was 577, the sum offered by the company was 300; the jury found a verdict for 170.

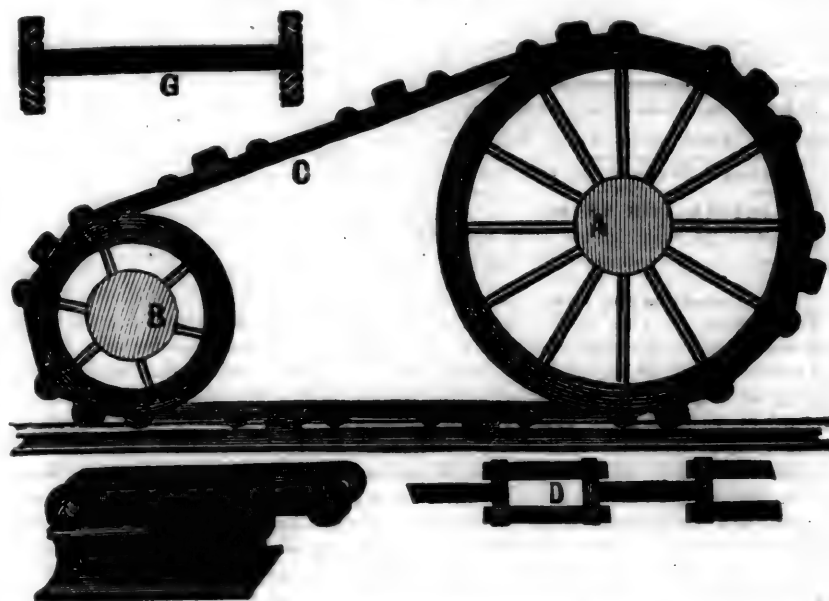
It is estimated that on the yearly supply of the London market—150,000 beasts and 1,500,000 sheep, the saving by railway conveyance is 675,000.

Experiments to test the quantity of coal best adapted for steam purposes are now being carried on in the College of Civil Engineers, Putney.

The North British and Mr. Hudson are reported to have finally concluded their arrangements. Under the guarantee of 8 per cent with half profits, the North British is to pass under Mr. Hudson's management. The transaction will of course have to be submitted to the proprietaries on both sides.

**Cornish Engines.**—The number of pumping engines reported this month is 24. They have consumed 1,471 tons of coal, and lifted 14,000,000 tons of water 10 fathoms high. The average duty of the whole is therefore 53,000 lbs. lifted one foot high by the consumption of a bushel of coal.

## A REVOLVING RAILROAD GRIPER. A NEW INVENTION.



This invention consists in gripers or catches so connected as to form an endless chain, C and D, which is made to revolve around two wheels running in a line over the rail of railroads, in such a manner that the jaws of each griper, as they come down from over the wheel, will project down the sides of the rail, and fasten to and loosen therefrom as the car advances. Its object is to enable cars to advance or stop at all times, with certainty and safety, both upon level and inclined planes, whether the track be dry, or rendered slippery from any cause.

The grippers consist of two parallel bars E, each furnished with a jaw to project down the sides of the rail F, and connected together at their ends by right and left hand screws. The grippers are connected together by a bar G, having its ends attached to the middle of one of the screws in each. This bar turns the screws which work the jaws to and from the rail. The wheels A and B may be attached to engines and cars, and the motive power conveyed to them by any known means. They are destined to bring the grippers in contact with the rail, but not to support their own or the weight of the engine. The forward wheel should be smaller than the other, in order to give greater motion to the screws and jaws, and both be provided with a flange on each side to guide the chain. The surface of the wheels between the flanges may be made of a number of sides or faces, instead of a circle, in order to prevent the slipping of the wheels in the chain, each side being of the same length as the grippers. The

screws are cut with very oblique threads, in order to give sufficient motion to the jaws. The grippers are opened by the curving of the chain on the wheel, and closed by coming to a line on the rail: thus fastening them to the rail under the foremost wheel, and loosening them therefrom under the rear wheel by the falling and rising of the single link or bar as it comes from or rises to the wheel. The action of the grippers is the same, whether the car moves forward or backward, being placed by the wheel on the rail, and then fastened. As the rear wheel passes over them they are first loosened, then taken up, and carried over to seize the rail again.

This improvement has for its object the removal of the most serious difficulty met with in the use of railroads, viz: the want of sufficient adhesion between the locomotive and the rail to allow the use of the full power of the engine, thus restricting the construction and use of railroads to level plains. The simplicity of its construction and operation, the certainty of its hold upon the rail, both in propelling and stopping trains, and its perfect adaptation to the common locomotive and the T or H rail, strongly recommend its adoption upon railroads, and especially upon those not yet completed, where vast sums of money are necessary to be expended in procuring a level surface for the track. The inventors, Dr. R. F. Stephens and Mr. L. B. Pitcher, of Syracuse, N. Y., have recently obtained a patent for the invention, and are ready to grant rights to railroad companies or individuals—to those who will first adopt its use, upon very favorable terms.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

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### INDEX FOR 1846.

The Title Page and Index for last years' volume were mailed with the last number of the Journal.

### Railroads at the East.

The Yankee Blade, in a late number, gives the following synopsis of the two main lines of railroad proposed eastward, from the city of Portland, Me., in regard to which much has been already said, through the New England press, upon both sides. The editor remarks that "the time is come for the extension of railroad communication to the valley of the Kennebec, is beyond doubt. That the travel and business is now sufficient to make investments in such a road profitable, is certain. But that more than one is required at present, or would be profitable if made now, is very questionable. It is of importance then that but one be attempted at present. What then should be the route adopted for that one?"

Two routes are presented for comparison; both commencing at Portland, and at three miles from that city, proceeding side by side to North Yarmouth, eleven miles. One then bends to the left, and runs by the way of Danville, Auburn, Lewiston, Greene, Leeds, Monmouth, Winthrop, Redfield and Belgrade to the Kennebec at Waterville.

The other inclines slightly at North Yarmouth to the right, and proceeds through Freeport, Brunswick, Topsham, Bowdoinham, Richmond, Gardiner, Hallowell, Augusta and Sidney, to Waterville.

The length of the upper, or Lewiston route, from the depot at Portland, is as follows:

To Danville, as per location of Atlantic and St. Lawrence railroad, is some over 29 miles—say .....	29 miles.
Danville to Lewiston, per Hall's "reconnoissance" .....	6 "
Thence to Sprague's brook, Greene .....	7 "
Thence to Monmouth Centre .....	5 1/2 "
Thence to Winthrop Village .....	5 1/2 "
Thence to Snow's Pond, Belgrade .....	12 1/2 "
Thence to West Waterville .....	9 "
Thence to Waterville .....	5 "

Total .....

The above distances from Danville to Waterville are taken from the report of Mr. Hall, the engineer, employed by the friends of this route. They are not actual admeasurements (no instrumental survey of the route having been made as yet) and are probably short of the actual distance in the aggregate.

The lower, or Augusta route, according to the report of the engineer, who, with a large corps was engaged in the survey more than two months, and

who vouches for its minute accuracy, is as follows: From Portland to Brunswick village .....

Thence through Gardiner village to the centre of Augusta village .....

Thence to Waterville (estimated) .....

Total .....

This route crosses the Androscoggin 1 1/4 mile from Brunswick. Another route was surveyed, crossing at the falls below Brunswick and Topsham, and joining the first in Richmond. By this route the distance from Portland to Augusta is but 56 1/2 miles, and to Waterville 75 1/2 miles. By adopting the longest route (58 to Augusta) the Androscoggin is crossed at the "narrows," which offers extraordinary facilities for bridging; and the branch from this point will be but 6 1-2 miles to Bath.

The shortest route is thus given, to Waterville, through Gardiner and Augusta. But in view of the question presented, viz: the reaching of the Kennebec from Portland, the matter of distance is in favor of the Augusta route; being by the Lewiston 79 1/2 miles; but touching the valley of the Kennebec at Bowdoinham in only 34 miles, and reaching the commercial heart at Gardiner, in 51 miles. But waiving this point, we will consider, for the purpose of this discussion, Waterville as the place to be reached; and it is settled by the surveys, that the Augusta route to Waterville is as short, if not shorter, than the Lewiston. But some may still doubt whether this be so, for it has become so much a habit in some quarters to speak of the route through Lewiston, as being "across to L," that people who do not examine for themselves, take it for granted, that if it be "across to L," it must be nearer than to go around by Augusta. Let such bend spread a map of the State before them, place one end of a rule upon Portland, or the point of separation in North Yarmouth, and the other upon Waterville, and they will find the straight line to run through Augusta and Hallowell villages; and that Brunswick is one-third nearer the line on one side, than Lewiston is on the other. In fine, it will be seen at a glance, that the Lewiston route bends much farther from the line than does the Augusta, and must of necessity, (unless much freer from curves) be longer than the latter. Whether it be likely to be freer from curves any one may judge upon reading the following extract from Mr. Hayward's report. After remarking that there are "42 miles of straight line," and nearly 10 of perfectly level, and that the remainder is in "grades from the most gentle to those of 39 1-2 feet to the mile," he goes on to say, that "there are very few railroads in New England—none of this length—whose grades and curves are of so unexceptionable a character. With the exception of a very few curves, and those at stations, where, of course, the trains will move slowly, there is nothing to prevent running this road at the rate of 30 to 35 miles per hour." "The gentleness of the grades adapts it to a heavy freighting business; and the directness of the line, its adaptation to a high speed in the trains consistent with safety and convenience, makes it a first class road." It may be proper to remark that Mr. Hayward, the gentleman employed to survey this road, has had great experience in his profession, and that his reputation for skill and judgment stands very high.

The next thing to be considered is, on the line of which route lies the greatest amount of existing population and business?

"On the Lewiston route, commencing at North Yarmouth (and excluding it and Waterville, as those towns are the assumed termini of each road) are the

towns named above, containing collectively a population of about 17,000, and three or four comparatively small business villages, containing in the aggregate perhaps sixty traders. It will be borne in mind, also, that these towns are among the oldest settled in this region, and that their population and business have not materially increased for twenty years.

"On the Augusta route, there is an aggregate population of 44,000; and, exclusive of four villages, each as important as any one on the Lewiston route, embracing five of the largest business towns in Maine, containing more than 500 retail traders and many wholesale merchants, and owning as many tons of shipping, probably, as any other five towns in the State. [Bath is included in the Augusta route, as it is virtually identified with it, being included in the Act of Incorporation, and by the provisions of the act, the branch to Bath is to be completed simultaneously with the completion of the road to Brunswick.] It may not be amiss to remark in illustration of this latter statement, that there have been built on the line of this route, and within five or six miles of it, during the present year, about 60 vessels, averaging nearly 250 tons each, and worth, in the aggregate, \$600,000. It is worthy of observation, also, that the towns on this line have increased their population, at least 10,000 within ten years. Again, were the Lewiston road built, none of the towns upon the proposed Augusta line, and but two or three lying between them, would ever use the road, but as a matter of course continue in the use of the existing modes of travel, until the exigencies of the case shall call into existence a railroad for their accommodation, which would doubtless occur in time.

"On the other hand, were the Augusta road made and the Lewiston not, one half the towns upon the route of the latter, all the intermediate towns, and a large portion of those westwardly of it, would resort to the Augusta one, as they would but be continuing their accustomed routine of business and travel.

"It will be seen, that in this comparison we have kept out of view all the population lying east of the Kennebec river, for no one can fail to perceive that the whole of it would be as well commoded by a road from Waterville, passing through Lewiston; and that three-fourths of it would be vastly more accommodated by the former.

"The question propounded for discussion, at the commencement of this article, must, in view of the foregoing incontrovertible facts, be answered in favor of the Augusta route. Many other facts having a bearing upon the subject might be adduced to the same purpose.

"In a future article, should we find time, and the ground be not previously occupied by an abler pen, we propose to resume the subject, and attempt to show that the business and local intercourse of the towns on the Kennebec river require that they should be connected by a band of iron, as they are now united by a community of interests; and adducing reasons why the great main trunk of railroad communication, for the whole State, should pass upon the Kennebec route."

✶ The Rochester Democrat says that, the companies from Utica to Auburn, contemplate reconstructing their track. To compete successfully with the great southern line, these roads will have to be rebuilt in a substantial manner. We hope there will be no difficulty in the way of running an express train through in the summer. The Utica company proposes to do so if the rest will follow the example.

**Dayton and Springfield Railroad.**

The Dayton Journal publishes the proceedings of a meeting held in that city on Monday evening.—Messrs. Beckle and Smith reported that they had an interview with the Board of Directors of the Mad River and Lake Erie railroad at Bellefontain, who expressed themselves anxious to aid the project of connecting Springfield with Dayton. They gave assurance that they would furnish the iron, estimated to cost \$60,000, if sufficient stock could be obtained to grade and prepare the way for the rails, say \$140,000. Messrs. Rench and Gebhard have been authorized by the Board to open books for subscriptions of stock in the Mad River and Lake Erie company, on the footing of the original stockholders. Messrs. Beckle and Smith have authority to procure the right of way, and another committee was raised to put the work under contract, as soon as the subscriptions of stock will warrant it. Engineers will survey the route in a few days, and estimate the cost. The road from Sandusky to Tiffin has yielded 12 per cent. on its cost. Springfield is looked to for a liberal subscription to this enterprise. Success attend our neighbors.

**Coal.**

Mr. LYELL, says the Philadelphia Ledger, states that Illinois contains more coal than all Europe.—The authority is as good as any on such a subject, for Mr. Lyell is a very enlightened geologist, and geology furnishes the means of ascertaining the constitution of any region. And whoever will examine the valley of the Mississippi with a geological eye, will say that it ought to contain coal in large quantities, and that the portions bounded by the lakes, the Mississippi and the Ohio ought to be especially fertile in that geological production. The whole State of Illinois must have been covered by the sea of which Lake Michigan is a remnant, and therefore must have received part of the forests torn by flood from the uplands. As the lake gradually receded, Illinois must have been left a marsh, subject to periodical inundations from the lake, the Mississippi and Ohio; and as such, it would receive the forests brought down the lake by these rivers, in these inundations. As the ocean is older than the lakes, so the great rivers must be older than the small; and therefore we take for granted that in the subsidence of waters from the great valley of the Mississippi, that river and the Ohio were the first perennial drains. As the waters continued to subside, all inequalities in the surface of the valley augmented, whether from drifts, deposits, or any other causes, the Wabash and Illinois became perennial drains; and thus the region of Illinois became bounded by one great reservoir, Lake Michigan and three great drains, the Wabash, Ohio, and Mississippi, with two other great drains, the Kaskaskia and Illinois, in the middle. All these continuing to rise and fall periodically, would convey and deposit on the adjoining regions large quantities of drift wood. And as ridges continued to rise between any two of these rivers, they would produce vegetation, which would be swept away by the periodical floods, and be deposited in the low lands by the tributary rivers, or carried by them to the great rivers, to be so deposited in their inundations. And after this periodical destruction of forests had ceased, the periodical inundations of all the streams, great and small, would overlay these ligneous deposits with earth, and thus produce the present region of Illinois, an alluvial soil deposited upon coal beds, and washed by great rivers. All the elements of carbonic formation have been applied to Illinois; and if such formation be not the result, then that re-

gion is an extraordinary exception from the operation of geological laws.

Then taking Mr. Lyell's opinion as correct, we see in this coal a wise provision of Providence, and an abundant source of wealth to that State and the nation. It will be not only a substitute for wood, so deficient in that State, as ordinary fuel, but a substitute for water power, also deficient in that campaign State, in every species of manufacturing, and in steam navigation. The time is not distant when even the immense forests of the Mississippi valley will fail to supply its numerous and increasing steamboats. Then what an abundant source of public convenience and state wealth will be found in these coal beds? And if the great State of Illinois, with its 55,000 square miles, its fertile lands, its navigable rivers, and immense agricultural wealth, also possesses inexhaustible coal beds for itself and the southwestern states, who can doubt its ultimate ability to pay its debts?

**Coal Trade.**

It is stated that the first coal of consequence dug from the mines in Pennsylvania, was in 1820, when 365 tons were sent to market. The increase of the trade since that time has been regular, though very large. The amount sent to market in 1846, previous to November 1st was 2,312,54 tons. The cargo price averaged the last year in Boston, from 25 to 37 cents higher than for the last four years.—Contracts, we understand, have been made, for the coming season for coal in Philadelphia, at the same rate as last year, which, with a probable additional freight, will make the cost of coal here higher than last season.

**Water Works of New Orleans.**

We learn from the New York Herald that the President of the Water Works of the Commercial bank of New Orleans, has made a contract with the Allaire Association of New York, for an engine and hydraulic machinery, to be capable of raising six millions of gallons of water every twenty-four hours. This will, says the Herald, be the largest of the kind in the United States.

**St. Lawrence and Atlantic Terminus.**

The following article, which appeared in a late number of the Portland Argus, emanates, we have reason to believe, from authority—and the facts contained therein may be relied on as correct.

**Terminus and Depot of the Atlantic and St. Lawrence Railroad at Portland.**—The centre line of the road, as it enters the city, runs from the curve round Fish point, on a straight line two thousand eight hundred feet to the northeasterly corner of India wharf, and thence onward in the same straight line to Andrews' or steamboat wharf on the south side of India street. The road is located six rods wide. The shore line of it, after leaving Fish point, lies below low water mark. On the water side of the road, for more than a quarter of a mile in length, vessels drawing 20 feet of water can lie and load. This location carries out the views of the Canadian as well as of the Maine company. Considering that the road is intended principally as a freight road, it combines advantages that the location of no other terminus and depot either in Boston or New England can claim.

1st. Passengers will be landed from the cars at the foot of India street, one of the widest in the city, and in the immediate vicinity of the steamboats and propellers and of

our hotels and boarding houses. Nearly one-half of the passengers that now come to Portland by stages, bound to New York and Boston, in summer take passage by the steamers in preference to the cars. Many also arrive from Boston and elsewhere by the steamers and propellers, bound east and north. To those passengers whose business or destination requires them to stop in the city, or to come or go by the steamers, the accommodations will be everything that can be desired.

2d. But the unquestionable advantage which this location possesses over all others in New England, is the facilities it offers, for the reception, lading, shipment and transshipment of freight. It is well known to every man, whose residence and business have led him to a practical knowledge of the subject, that under ordinary circumstances railroads cannot compete successfully with steamboats, propellers, and in cases of heavy and bulky articles, not even with sailing vessels in the transportation of freight. Most of the flour brought to this place comes by way of New York, and none of it, not even that from Boston, by railroad. Not one ton in two hundred of the freight which passes yearly between this city and Boston, is carried by railroad.

Assuming then as a fact, that in the matter of the transportation of freight, railroads cannot successfully compete with water borne craft, when that craft can move freely without obstruction, or detention, and directly to its port of destination, the superior advantage of this terminus and depot are manifest. The freight brought by the road from the interior comes directly along side of the vessel or steamer that is to receive it: not to be impounded here, as some have represented, nor to be taxed with cartage, truckage and wharfage, as in all other places, but to be transferred, by proper mechanical contrivances, directly from the cars on board the vessel. From the wharf in Portland it will be transported by the cheapest possible conveyance to its place of destination, whether it be Boston, New York, the West Indies, an Eastern, a Western, or an European port. The owner of the freight has therefore afforded him—not a single and limited market, not a nominal but a real choice of markets, with the best and cheapest channel for getting to it. It may be safely assumed that nine-tenths in value, and ninety-nine-hundredths in weight and bulk of the articles transported over the road, if of any comparative value at home, could not bear the tax of a moderate freight over an ordinary railroad of some two or three hundred miles; and yet would pay, and pay handsomely, if the expense were reduced one-half. In the transportation and transshipment of articles such as these, it becomes a matter of the first importance, both to the producer and consumer, to study the means of economizing the expenditure. It is with a view to the wants, not of a comparatively small number, but of the great public, the producing and business-doing public, that the road has been located, and the terminus fixed where it is; and it is with the same view that even the gauge, which gives so much



trouble to some of our friends, and excites so much clamor and intrigue elsewhere, has been adopted by the directors. The same remarks which apply to the facilities of transporting merchandize to Portland, for the purpose of exportation, are equally applicable to the facilities afforded for the introduction and transportation of articles for the supply of the interior.

Add to these advantages another not less striking—a steamer, bound to sea, might ordinarily in *fifteen minutes* after leaving the side of the railroad, be on the broad Atlantic ocean, on her way to her port of destination. And this, too, without the aid or the charge of a pilot.

#### Columbus and Lake Erie Railroad.

The editor of the Sandusky Clarion publishes the following communication in his last paper, which shows that the railroad improvements in that region are "quietly but surely advancing." The editor says the information comes from a source in which the fullest reliance may be placed.

#### Editors of the Sandusky Clarion;

Gentlemen—A meeting of the Directors for the Columbus and Lake Erie railroad company, was holden yesterday at this place. The object of the meeting was to receive a delegation from Newark, and their proposals for subscribing to the capital stock of the company or otherwise to induce an extension from this to that place. The result of meeting this delegation, together with others from important towns along the line, has been such that entire confidence is now established in the rapid completion of something over 50 miles of the road. The enterprising citizens of Licking county, readily perceive the great advantages of a railroad communication with Lake Erie, where the distance is but one-half the length of the Ohio canal from Newark to Cleveland. To secure these advantages, they have shown a liberality equal to the importance of the object. Subscriptions to the capital stock of the company are secured sufficient to warrant letting of contracts embracing so much of the line to Columbus, as lies between Mansfield, Newark and Granville. Engineers will immediately locate that part of the line not previously located, and prepare for commencing operations strong handed.

Of the importance of this enterprize to your citizens, there can be no diversity of opinion. The proper officers of the two companies have entered into a perpetual contract for running the two roads in connection, determining first the width of the track, and securing to the M. and S. C. railroad company the delivery of all article of transport destined for the lake. The contract contemplates running the two roads with the same machinery, defining the rights of parties, and division of earnings and expenses.

It has been remarked by those best acquainted with the results of railroad improvements, that no preestimate has equalled their business or earnings. If this has been their experience, and in view of this, capitalists engage in building such a line of road as the one now being built across the barren region from Ogdensburg to Lake Champlain, how

much more should they be encouraged who have in hand the interest of one hundred miles of road, traversing the richest products of agricultural labor and return freights of merchandize, which will constitute the great bulk of transportation. It is confidently believed by those who live in the vicinity of the Hocking mines and other coal regions adjacent to the line of C. and L. E. railroad, that bituminous coal will constitute the chief article of transport over the road to Lake Erie, making your town the great coal yard for the rich mineral regions of the north, and the country bordering upon the lakes. Be this as it may, there are other and ample assurances of large and remunerating profits to stockholders for the transportation of passengers and the produce of the country.

The extension of a line of railroad from the lake to Newark, so soon to be completed, is a matter of congratulation and great satisfaction to those who have had the enterprize in hand, and especially so, when considered as having triumphed upon its own merits, over rival improvements now begging legislative aid to inveigle foreign capitalists into measures for promoting local interests.

Respectfully,

Mansfield, January 22d, 1847.

#### Belgian Railways.

We have just received the annual report of the Belgian Minister of Public Works—M. A. De Bavay—for 1845. It is very voluminous, and contains 520 pages of tables. It appears that during 1845 that 4,968,052.08 fr. (£198,722) was expended on the railways. The total sum expended in the construction of the 348 miles of railway up to the 31st Dec. 1845, was 149,714,827.14 fr. (£5,988,592), being at the rate of £11,404 per mile. There are 225 miles of double line, and 123 miles of single line. The double lines are Brussels and Antwerp 46 kil. Malines and Gand 57 kil., Ostend and Plassehendael 6 kil., Courtray and the frontier 15 kil., Molines and the frontier of Prussia 133 kil., Brussels and the frontier of France 82 kil., Brain-le-Comte and Goderville 14 kil., Goselias and Charleroy 9 kil.; total, 362 kil.—The single lines are Gand to Plassehendael 60 kil., Gand to Courtenay 44 kil., Mouscron to Torney 19 kil. Landen to St. Trond 10 kil., Godarville to Gosselias 21 kil., Charleroy to Namur 37 kil., Branch at Antwerp 3 kil., and branch at Brussels 3 kil.; total, 197 kil. In 1845 they had 3 new engines with cylinders of 15, 14, 13 inches diameter respectively, 63 new passenger carriages, 292 goods wagons, and 20 other wagons.—So that on the 1st Jan. 1846, the working stock consisted of 149 locomotives, 145 tenders, 684 passenger carriages, 2,200 goods wagons, and 400 other wagons. In March, 1845, orders were given to construct three carriages, such as the one constructed in 1844 on the American system, capable of holding 84 persons, differing, however, from the American plan, by introducing 1st, 2d, and 3d class passengers in the same carriage, (the Americans have only one class) which the report says was found to be a very economical and satisfactory carriage. The fol-

lowing table shows the working expenses, the length of line opened, the number of leagues (3 1-8 miles) run and the cost per league train.

	Total working expenses.	Length of line open.	Tot. No. of leag's run.	Cost per mile pr train.	Exp'ns per leag's pr mile.
	Francs.	Leagues.	Leag's.	Francs.	s. d.
1841	4,339,659.17	674	289,726	15.67	4 2
1842	4,700,327.08	794	317,818	14.79	3 11
1843	5,476,615.72	964	375,334	14.59	3 10
1844	5,765,430.80	111 8-10	497,061	11.60	3 1
1845	6,321,575.48	111 8-10	545,302	11.59	3 1

The increase and diminution in the expense per train per league depends upon several circumstances. The number of trains per day, the number of carriages per train, the number of passengers per train and the speed at which the trains travel. The average number of carriages per train in 1844 was 10.5, while in 1845, it amounted to 14.5; the cost per league per train in the former case was 11.60fr., and in the latter but 11.59 fr. The consumption of coke per league per train was in 1844, 57.61 kil. (126½ lbs.) and in 1845, 57.17 kil. (128 lbs.) This anomaly is explained by the encouragement given to the engine drivers, stokers, and storekeepers to economise the coke. The former are allowed 25 cents, and the latter 6½ cents: total 31½ cents for each hectolitre (77 lbs.) of coke saved on the amount allowed, which was at the rate of 4 kil. per carriage in a train per league. The amount of coke saved by this means on the quantity allowed, during 1845, was 4,006,310 kil. (3,934 tons,) which at the price of 23.78fr. per 1,000 kil. (nearly 1 ton) amounted to 95,270.05fr.; deduct from this sum 35,770.84fr. (£1,430) paid to stokers, etc., as commission for saving the coke, which leaves a net saving of 59,499.21fr. (2,379) in favor of the state on the quantities usually allowed for the locomotives. The number of passengers carried in 1845:—1st class, 397,608; 2d class, 970,662; 3d class, 2,074,796: total, 3,443,066; soldiers, 10,939; extra persons, 16,673: 27,612: total number carried, 3,470,678; ditto in 1844, 3,381,529; increase 89,144 passengers. The number of passengers carried in September was 13,458; while that in February was but 6,483. The average weight of the luggage of each passenger, in 1845, was 3.21 kil. (7.06 lbs.) and in 1844, 3.12 kil. (6.86 lbs. In 1845, 6,455,501,664 kil. of merchandize (633,976 tons) was carried; and in 1844, 520,422,667; increase, 125,078,987 kil., or more than 24 per cent. The receipts for passengers, in 1845, were 6,393,309.20fr.; and, in 1844, 6,166,548.94fr.; increase, 226,760.26fr., or about 4 per cent. For goods in 1845, 4,175,593.41fr.; in 1844, 3,323,013.90fr.; increase 852,569.51, or 26 per cent. The total receipts for 1845, amount to 12,403,204.55fr. (£496,128) or £1,426 per mile per annum; in 1844, the rate was £1,291; increase 10½ per cent. The international traffic with Germany amounted to 12½ per cent., and that with France to 8½ per cent., of the total receipts. It is also interesting to know that the working expenses in 1844 were 51.33 per cent. of the receipts, while the dividend on the capital expended was equal to 3.69 per

cent.; 1845, the working expenses were 60.94 per cent., and the dividend on the capital equal to 4.16 per cent. The latter would have amounted to 4.39 per cent. had the carriage of provisions, etc., been taken into account, which were carried gratuitously on the railways for the public benefit.

*Comparison of the Receipts and Working Expenses per league from 1841 to 1845, inclusive.*

Year	Total receipts	Tot. work- ing exp's	Lang. ope'd.	Repts pr. league.	Ex. per league.	Pro't pr league.
	Francs.	Francs.	Lgs.	Francs.	Fr.	Fr.
1841	6,126,343	4,539,659	67.7	91,902	67,006	24,896
1842	7,461,553	4,700,327	79.3	94,212	59,348	34,864
1843	9,641,269	5,476,616	96.5	93,692	56,752	36,930
1844	11,930,493	5,765,431	111.8	100,452	51,569	48,833
1845	12,403,205	6,321,576	111.8	110,941	56,444	54,398

**Railways in India.**

From the Overland Delhi Gazette, October 19.

**Railway Traffic.**—We have been favored with a detailed table, published in the Delhi Gazette, giving the actual traffic on the grand trunk road, near Cawnpore. The results are briefly, a daily average for the month of September, of:

- 67.2 Hackeries, laden and unladen.
- 13.8 Camels, do do.
- 14.2 Bullocks and ponies, ditto.
- 9.4 Coolies and Banghies, ditto.
- 1.3 Carriages.
- 15.9 Native Bailies.
- 1.2 Palkees.
- 0.4 Elephants.
- 1.1 Doolees.
- 94.0 Horses.

1,022.2 Foot passengers:

There is, perhaps, no country in the world with any pretence to civilization, in which there is such an immense mass of unproductive labor, as in India, and stranger still to say, in that species of labor, the carrying trade, if we may so term it, which above all others, entails a constantly recurring expense. Out of 4032 hackeries which passed over the Cawnpore Trunk Road, from the 1st to the 30th of September, inclusive, 3228 were laden, and 804, or one-fifth of the whole number, unladen. We could scarcely have selected a more striking instance in proof of our hypothesis. The fact itself is sufficiently illustrative of the carrying trade, and of the expense of carriage generally—for the unproductive labor must somehow be paid for, and what process so simple, we do not say so expedient, as that which compels the owner of goods to pay at the rate of one-and-a-half tons of goods for every ton thus carried; and yet such is the system in practice generally, in India, and such it perhaps must necessarily be with such lumbering and crazy conveyances as we see daily passing before us. The same remark applies, and perhaps with still greater accuracy, to the transit of smaller parcels as effected by coolies and banghies. The proportion of unproductive labor must be in this instance still lamentably greater, and serves to show how backward this country is in its several and even in its peculiar modes of transit.

With these preliminary remarks we may proceed to examine the valuable registry of

traffic already noticed, at the same time promising that such information as we may glean from the statistical details of one month must necessarily be very imperfect, and more especially when that month happens to be, as in the present instance, the most unfavorable month for traffic in the year. Our acquaintance, moreover, with that particular district is not sufficiently intimate as to enable us to draw any definite conclusion, from the traffic on any one particular line of the road, as that from east to west, as to what it may be also from north to south. Taking the usual loads as undermentioned, for a four-bullock hackery, 20 maunds; an elephant, 20; camel, 6; bullock, 2½; pony, 1½; coolie, ½; and, making due allowance for such conveyances as passed unladen, we find, with that safe proviso, errors excepted, that the average daily amount of goods exceeded in weight 43 tons. On the principles that money makes money, and that railways create traffic, this amount would be considerably increased, and there would be, supposing the charge not very exorbitant, at least 60 tons of goods available for despatch daily, and as the average weight of a Manchester and Liverpool train is, if we recollect rightly, about 47 tons, there would be a sufficient supply, under any circumstance, for a daily train up and down in one isolated district.

The average cost for conveyances of goods by land carriage in India may be estimated at 30 rupees per ton (27½ maunds) every 100 miles. By a railway at the ordinary rate of 2.88 pence per ton per mile, at the average velocity, it would be 13 rupees per ton per 100 miles. Here then there would be an actual saving, in the mere cost of conveyance, of nearly 200 per cent., and this saving, in addition to the other unnumbered advantages which increased speed affords, would act more powerfully to bring into action the productive resources of India than any legislative enactment or any system of bolstering privileges whatever. In the registry of traffic on which these remarks are founded, are not included, we have reason to infer, any return of Government stores, which are constantly passing through the country. These latter, we understand, except in time of war or when there is any unusual emergency, are forwarded by river transit, when such is available, and must, therefore, have been overlooked when the statement of traffic was being prepared. But as the railway companies may reckon with every confidence on the employment which Government can furnish, we have only to add the amount of those stores to the general traffic of the country, and we shall form by no means a disheartening estimate of the amount of goods available for transit.

It would be difficult, or perhaps next to impossible, to form even any approximate guess of the number of travellers who could afford to pay the fare, however low it may be, for railway travelling. The table under consideration furnishes us with a sufficiently distinct view of the number of travellers on that particular road. The total is somewhat startling; more than 1200 are daily passing

on that road, and yet how few of these could afford to pay even at the rate of a pice per mile. The number passing daily in carriages and native conveyances, palkees and doolies, at the lowest average, exceeds 48, and of these perhaps 20 could afford to pay for a seat in a train. The number passing on horses and ponies is placed at 94, and of these perhaps a fifth part would give up the horse for the rail. We have at this rate, without including any from the foot-passenger class, about 35 travellers daily like to avail themselves of the accommodation thus offered. If the charge for third class passengers be sufficiently low, something slightly in excess of that charged for goods, we might multiply this number by tens, and give the result as the daily average amount of railway passengers. We have to add to this the charge for conveyance of the mails and Government servants, and shall even then form a very inadequate idea of the extent of travelling which railways would create. We have only to multiply these results by ten—perhaps by a hundred—in order to gain a more correct estimate of the amount of traffic in a single section of the country. The railway system, like the human frame, is wonderful and complex in all its parts; and if the system be healthy, all its movements are regulated with unerring precision. As it is impossible to guess from the infant in arms whether he may turn out eventually a giant or a pigmy in stature and strength, so it is impossible to guess, especially under circumstances so novel, and in such an immense breadth of country, whether a railway can even here possibly present those gigantic combinations which elsewhere it has confessedly displayed. A railway may be easily projected, and as far as the difficulties of engineering are concerned, as easily made; but it can only thrive by unremitting vigilance on the part of its conductors, and by the line having been so judiciously selected as to embrace the requirements of the country, and to unite its main arteries. A railway, so we are told, now connects the Falls of Niagara with the remotest parts of Albany, and what was formerly a fatiguing tour of many weeks, may now be passed over with ease at the rate of 16 miles an hour. Cities containing a population of 20,000 souls, now occupy sites on which, about twenty-five years ago, log-cabins were constructed. The extremes of civilization may be there said to meet, for groups of Indians, lately the unprofitable owners of the broad lands around, assemble to offer for sale at the various station-houses their simple trinkets, and gaze at the ponderous machine as it rushes forward to its destination. And why may not the same results be anticipated in a country like India, in which everything is in an infinitely higher state of advancement, and which has enjoyed in such an eminent degree, so long an interval of rest and security? The Report of the Railway Directors proves, if any proofs are required, the feasibility of railways. The registry of traffic, on which we have commented, proves likewise that there is a sufficiency of goods for transit, and thus has the first



pebble been thrown, which, in due time, by the zeal of the passers by, will be converted into a mountain.

#### Reading Railroad Report for 1846.

We have received a copy of the annual report of this company. It is full and explicit, giving full details in the different departments. The amount of coal brought down was not quite equal to the estimate in the last annual report—owing to the severe "freshest in May, and the great falling off in demand for coal in August and September," but the receipts for the year were greater than the estimate.

We only give, this week, the report of the President, JOHN TUCKER, Esq., as it came to hand at a late hour, when the Journal was nearly ready for the press—but the next number will contain the remainder, with all the details. By referring to the last year's report—see RR. J. page 171—it will be seen on reading this, that there has been a large increase of power and ability to meet the demands of the public; and we may anticipate for the company a considerable increase of business the ensuing year. We shall, in our next, refer more at length to the subject.

#### Report of the President and Managers of the Philadelphia and Reading Railroad Company to the Stockholders, January 12, 1847.

#### To the Stockholders of the Philadelphia and Reading Railroad Company.

The Managers have the pleasure of stating that the profits derived from the business for the year ending November 30th, 1846, are even greater than they predicted at your last meeting.

They can also state, that there is still the same desire to secure the facilities which the company possess for the transportation of coal, as existed at the close of the previous year.

A table of the anthracite coal trade (prepared by the Philadelphia Commercial List) for the year, is appended. It shows an increase in the consumption over that of the last year, of 207,626 tons, of which 153,159 tons have been furnished from the Schuylkill region.

The usual statement of the Treasurer, showing the financial position of the company, is herewith submitted. Also an account of the profits resulting from the business.

It will be observed that the net revenue for the year is \$1,037,795 21, showing an increase over that of the former year of \$530,490 22.

The expenditures for new machinery and for necessary and consequent permanent improvements, are fully explained in the accompanying statements, with the exception of the following items, viz:

Railroad iron for 8½ miles new track, sidings, etc.....	\$50,087 05
Land damages, and settlement of claims previously adjusted, strictly appertaining to the business of previous years and the cost of the road.....	28,769 68

\$78,856 73

The disbursements for other purposes are given in such minute detail in the reports annexed, that further allusion to them here is deemed unnecessary.

The increase in the receipts over those of last year, from

The transportation of coal is.	713,728 00 or	80 p. c.
" " merchandise	76,995 78 or	127 p. c.
" " passengers	38,337 94 or	37 p. c.

\$829,061 72

The managers regard this result, as showing conclusively the propriety of the expenditure by which it was produced.

During the ensuing year, it is not the intention of the Managers to increase the quantity of machinery further than to obtain the four locomotive engines authorized at the last meeting, which were then ordered, but have not been received by the company, in consequence of a departure from the terms of the contract.

The policy of gradually changing the wooden bridges into stone or iron, as they require extensive repairs, will be continued. The propriety of this course cannot be doubted, as the saving when thus changed is vastly more than the interest on the increased cost. They are now in such good condition that it is not, at present, proposed to alter many of them.

The expenditures will, therefore, be small during the ensuing year.

The Managers for the first time, have now the pleasure of calling your attention to the subject of a dividend.

The profit and loss account of the year results as follows, viz:

Gross receipts from all sources.....	1,900,115 35
Deduct all expenses.....	862,320 14
" Interest.....	571,119 93
" Taxes, etc.....	16,380 19
" Commissions & charges.....	43,672 61
" Sundries.....	4,330 19

1,497,823 06

Balance applicable to a dividend fund, or upwards of 12½ per cent.....	\$402,293 29
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If the proprietors had taken Stock at par as contemplated by the charter, to provide funds for the payments for the new machinery, which you directed should be obtained at the last meeting, and for other consequent improvements, this fund would now be in the hands of the treasurer.

But as no such provision was made, the revenue has been applied towards the payments for this new property, and a dividend in money is therefore impracticable.

Under these circumstances, the question of the propriety of a dividend in shares, has had the serious consideration of the managers, but as they do not feel themselves authorized to create new stock, without your sanction, they refer this subject to you and ask for your instructions.

While the debt remains so large, the managers urge upon you the importance of adopting at present, and for the future, such permanent course in reference to the subject of dividends, as will give the company (to the extent of its profits) the means to pay the bonds as they mature, or insure the conversion of the debt into stock.

The policy of making dividends in stock, insures a gradual decrease of the debt. This course is subject to no well founded objection, and is common elsewhere with the most prosperous institutions.

The profits are thus reserved for the diminution of the debt, or for the acquisition of

new property to increase the revenue, and thus each successive year the company is placed in a more independent and prosperous position.

By the adoption of this system, the stockholder may confidently expect to receive more than the bondholder, while the latter cannot but approve of the measure, as the profits are applied to the liquidation of the debt, or to increase the property of the company, by which the security of the creditor is enhanced.

With these views, the whole matter is submitted, as one peculiarly within your province for decision.

The managers think it not improper to remind you of the accuracy of the estimate made a year since, of the business and profits. The period, for which the estimate was made, was from January 1st to December 31st, 1846.

The tonnage (Coal and Merchandise) transported during that year, differs only..... 27,566 Tons.

Through passengers for same time... 8,061

Profits or revenue from the business from Dec. 1, 1845, to Nov. 30, 1846, \$49,775 21

(The profits for December, 1846, not yet made up.)

In each item, the anticipations then expressed, have been exceeded.

The Managers feel that the permanent prosperity of the company is fully established. Their past Predictions of the capacity of the coal machinery and of the cost of transporting that fuel to market, have been fully confirmed, and they deem it unnecessary for them to give any detailed estimate of the future business, farther than to express their confident belief, that the report of the ensuing year will not be less than that they now present.

By order of the Board of Managers,  
JOHN TUCKER, President.

Office of the Philadelphia and Reading Railroad Company, Philad., January 8th, 1847.

President.—JOHN TUCKER.

Managers.—Charles H. Fisher, Samuel Norris, John Towne, William R. Lejee, Christopher Loesser, of Orwigsburg, Mathias S. Richards, of Reading.

Secretary and Treasurer.—Samuel Bradford.

(To be Continued.)

The turnpike tolls from Pelham-lane gate to Deptford Hill and Bromley Common gates which were last year let for the sum of 12,530£, have just been taken for 11,470£.

The Northern of France have introduced heaters of hot water into the first class carriages.

Cape Cod Branch Railroad.—It has been repeatedly stated that the stock of this road had been all subscribed. This is a mistake; \$100,000 are now wanting; but we are assured that it will soon be all taken up. The following sums were last week subscribed by three gentlemen in Boston, of Cape Cod origin: \$10,000, \$6,000, \$4,000.

Railroad Stockholders under Laws of Vermont.—The court in Vermont has given an opinion in favor of the Vermont Central railroad company, in the case of said corporation

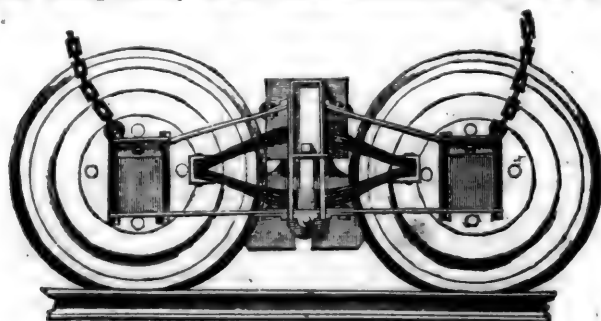
against one of their delinquent stockholders. We believe this is the first case which has been decided in the state of Vermont as to the liabilities of railroad stockholders.

**Perpetual Motion.**—The Hartford Times says that a machine is now on exhibition in that city, which is claimed to be capable of producing perpetual motion. It is running now, and will be during the continuance of the fair. It is an ingenious contrivance, truly, and may lead to useful improvements in machinery, if it does not prove capable, in itself, of driving powerful machinery; and its owners claim this merit for it. The motion (turning of a wheel) is procured by a spring, similar to that of a watch, and the continued winding up is performed by the expansion and contraction of fluid, (oil is used, though quicksilver is undoubtedly preferable) confined, as in a thermometer, at the base of a rod upon which it acts as the change in the temperature of the atmosphere expands or contracts it. By an ingenious contrivance the revolving axle is made to turn the same way, whether the tendency of the fluid be up or down. The capacity of the machine now on exhibition is sufficient to raise 400 pounds, and the slightest variation from heat to cold acts upon the "winding up" part of the machine. The proprietors says a clock was attached to one of these machines about two years since, and it has kept it wound up, so that it has run constantly to this time. It is the invention of Col. Boon, of Ohio, who has spent a life and a fortune upon it.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
**DAVIS, BROOKS & CO.,**  
Jan. 2. [11f] 68 Broad St., New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address  
**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.  
For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

**THOMAS WEST, President**  
Boston and Maine Railroad.  
January 22, 1847. 314

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.  
**J. W. BROOKS, Supt. & Eng.**  
Detroit, January 5, 1847. 513

**A. & G. HALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz: 180 tons  $2\frac{1}{2}$  x  $\frac{1}{2}$  inch Flat Punched Rails, 90 ft. long. 25 "  $2\frac{1}{2}$  x  $\frac{1}{2}$  " Flange Iron Rails. 75 "  $1\frac{1}{2}$  x  $\frac{1}{2}$  " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN, Agent.**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10:39

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa. ja45

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York 28f

**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

**New York, May 4, 1846.** **W. H. CALKINS, and Others.**  
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROZ, Supt of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used, its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

**Reading, Pa., October 6, 1845.** [Signed,] **G. A. NICOLL,**  
Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**  
**Jersey City, November 4, 1845.** N. Jersey Railroad and Transp. Co.  
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.  
**Long Island Railroad Depot, } [Signed,] JOHN LEACH,**  
**Jamaica November 12, 1845. } 1y19 Supt Motive Power.**



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 3d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 3d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 190 Meeting street Charleston, S. C.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 13 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

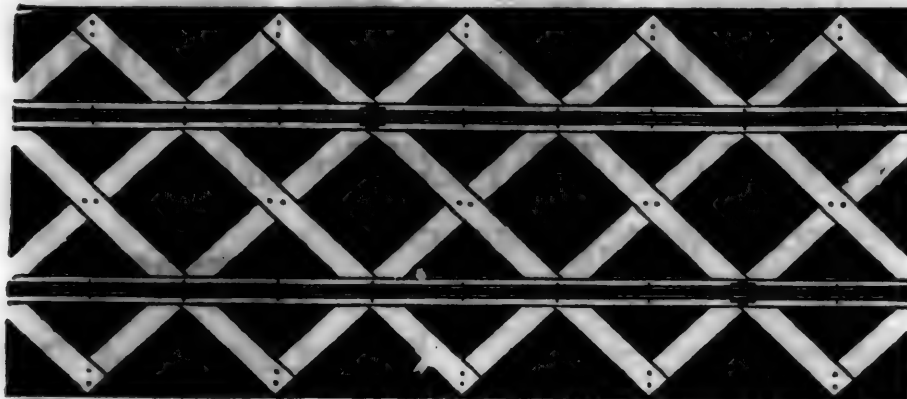
ja45

**DAVENPORT & BRIDGES CONTINUE**

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail ..... \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33ct

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	90
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 4		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1724

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.

No 23 Pear street,  
ly10 near Third,  
below Walnut,  
Philadelphia.

# LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly35

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE  
Pres't. Mt. Savage Iron Works,  
Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.**

Agents.  
1748 77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.**, No. 68 Broad Street, have now in port on Ship-board, 900 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.  
Nov. 16, 1846. 46ct

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III, No. 7.]

SATURDAY, FEBRUARY 13, 1847.

[WHOLE No. 556, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES CONNECTING** with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m. Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 5 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m. Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Sup'r.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$3 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York Railroads are about to be reduced.

Sandusky, Ohio.

B. HIGGINS, Sup't, etc.

M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April

1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13tf

## NORWICH AND WORCESTER RAIL-

Road. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y

J. W. STOWELL, Sup't.

**TROY RAILROADS.—IMPORTANT NOTICE.**—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

#### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

#### TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

#### BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland and at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

#### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

#### TIME.

From Buffalo to Sandusky 24 hours. Leave Sandusky 5 a.m. to Columbus 14 " From Columbus to Cincinnati 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

#### FARE.

From Buffalo to Sandusky, Cabin \$6 00 " " " Steerage 3 00 " Sandusky to Columbus 4 50 " " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 3 1/2 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

#### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

#### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at 9 a.m. and 3 1/2 p.m. Arrives at 9 a.m. and 6 1/2 p.m. Leaves York at 5 a.m. and 3 p.m. Arrives at 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at 8 a.m. and 2 p.m.

#### FARE.

Fare to York \$1 50 " Wrightsville 2 00 " Columbia 2 12 1/2

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9 Or via Lancaster by railroad 10 Through tickets to Harrisburg or Gettysburg 3 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owid's Mill, arriving at the Mills at 5 1/2 p.m. Returning, leaves Owid's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

#### LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 25 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

#### SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

#### CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally 50 cts. per hundred. On measurement goods 13 cts. per cubic ft.

On brls. wet (except molasses and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.

On hds. and pipes of liquor, not over 120 gallons \$5 00 per hhd.

On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v191y



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	\$0 50	\$0 75
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).....	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 358 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga. 250 miles.	Between Charleston and Oothcaloga. 356 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	95
Salt per Liverpool sack..		
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warren, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
E. cor. 12th and Market sts., Philad., Pa. 1y

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenion, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

W. H. CLEMENT, Sup't.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
2d Engineer and General Superintendent.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

## Reading Railroad Report for 1846.

Continued from page 93

## General Account of the Philadelphia and Reading Railroad Company, for the Year Ending November 30th, 1846.

To railroad.....	8,912,991 09	By stock shares, 62,400, at \$50.....			\$3,120,000 00
To locomotive engines and cars.....	2,091,279 16	6 per cent. Loan of 1842, inconvertible, payable 1847.....		343,200 00	
To real estate.....	321,846 05	" " 1839-40, convertible, " 1850.....		2,170,500 00	
To depots.....	205,324 87	" " 1839, convertible, £100,000, payable 1850.....		523,200 00	
To materials for transportation department for value on hand.....	46,257 16	" " 1843, mortgage, convertible, £210,000 payable 1860.....	1,008,000 00		
To materials for roadway department for value on hand.....	11,998 34	" " 1843, dollar bonds, payable 1860.....	480,000 00		
		" " 1844, mortgage and convertible, payable 1860..		1,458,000 00	
		5 per cent. " 1836, do. do., £196,000, do. 1860..		1,399,000 00	
		6 per cent. " 1845, mortgage and convertible, payable 1848..		940,800 00	
		" " 1845, mortgage and convertible, payable 1849 ..		75,000 00	
		By bonds and mortgages on real estate.....		75,000 00	7,014,700 00
		By Sundry Accounts—due to sundry persons.....	194,570 97		129,300 00
		By Sundry Dumpages.—Due to sundry persons.....	11,500 84		
		By Notes Payable.—Due for coal cars to sundry persons, \$149,197 43			
		All other obligations of notes payable.....	942,817 81		
		Deduct Debts due the Company, viz:			
		Transportation accounts due by sundry persons for freight, tolls, etc.	103,600 62		
		Sundry accounts, including balance due on subscription of stock and loan authorized at the last annual meeting.....	227,018 50		
		By cash on hand.....	44,398 91	375,018 03	
		By profit and loss.....			923,069 02
		Balance subject to a dividend fund.....			402,627 65
	\$11,589,696 67				\$11,589,696 67

## Transportation Account.

To Expense of Transportation, viz:		By Business of the Road from the following sources:	
Running account, per statement B.....	391,086 53	Freight and tolls on coal.....	1,600,667 09
Workshop, do. do.....	200,359 81	Passenger travel.....	141,749 07
Depot, do. do.....	37,206 37	Freight on merchandize.....	137,583 52
Superintendence, do. do.....	17,128 85	Transportation U. S. mail, and other sources.....	9,713 84
Office, do. do.....	3,453 35		
Lateral railroad, do. do.....	2,641 38		
	651,876 29	Rent of wharves at Richmond, (less repairs).....	
Deduct value of materials on hand belonging to this account.....	31,194 15		1,889,713 52
			10,401 83
To Dumpage.—For amount paid for coal dumped at Richmond.....			
To Roadway.—For amount paid for repairs of road	136,123 93		
For watchmen at bridges and depots.....	10,078 33		
	146,202 30		
Less increased value of materials.....	3,234 76		
	142,967 54		
To contingent expenses, office in Philadelphia.			
For amount paid for salaries, attorneys' fees, stationery, printing, etc.....	21,226 11		
To Freight on Missing Coal.—For amount paid for this account.....	8,084 81		
To Profit and Loss.—For balance of this account..	1,037,795 21		
	\$1,900,115 35		
		S. BRADFORD, Treasurer.	
		Philadelphia, December 1, 1846.	
			\$1,900,115 35

## Table Showing the Business. (Each Item Monthly.)

	Dec., 1845	Jan., 1846	Feb.	March.	April.	May.	June.	July.	August.	September.	October.	November.	Totals.
Travel.....	8,645 63	6,976 54	6,047 32	8,999 24	13,340 42	13,455 87	13,541 14	14,982 72	15,431 35	15,384 47	13,857 01	11,095 36	\$1,417,49 07
Freight on goods...	10,276 26	9,273 92	9,093 70	12,077 83	15,764 90	14,024 00	12,546 98	10,818 24	10,088 48	10,948 54	12,300 75	10,369 92	137,583 52
Freight on coal...	45,467 48	52,720 82	49,101 91	74,864 71	125,417 05	115,763 95	184,312 78	214,802 28	198,029 71	181,719 92	198,378 67	160,087 61	1,600,667 09
Transp. U. S. mail	783 34	783 34	783 33	783 33	783 34	783 33	783 33	783 33	783 33	783 33	783 33	783 33	9,400 00
Miscella. receipts.	06			3 50	3 00	8 50	9 50	15 50	13 00	117,73	78 00	65 05	313 84
Monthly totals....	65,172 77	69,751 62	65,026 26	96,720 61	155,308 71	144,035 65	211,193 73	241,402 08	224,345 87	208,953 99	225,397 96	182,401 27	1,889,713 52
Coal transported..	39,289	50,167	45,899	60,180	100,018	93,121	136,539	150,090	137,203	126,347	137,305	112,104	1,188,258

REPORT OF ENGINEER AND SUPERINTENDENT.  
*John Tucker, Esq., President of the Philadelphia and Reading Railroad Company*

SIR:—The following report of the Transportation, Roadway, and Construction Departments, for the year ending November 30, 1846, is respectfully submitted.

**Transportation Department.**—The business of the road, including coal and merchandize tonnage, passengers, and receipts from these sources, is contained in statement A.—The receipts from coal have increased 80 per cent.; from merchandize 127; and from passengers 37 per cent. over the same items last year.

The gross and net expenses of this department are comprised in statements B and C; the former containing the total expenditures for wages and all materials; and the latter the apportionment of these expenses to the various branches of business for which they were contracted.

The running machinery will be found in statement D. Since the date of my last report, 19 locomotive engines, all of the first class, including two of great power and efficiency, for the Falls Grade, have been purchased by the company; 4 second class engines, hitherto light and inefficient machines, have been rebuilt in the company's workshops

at Reading, and now work with power and efficiency increased over 100 per cent.

The car force of the road has also been largely increased. During the past year have been added 1522 iron coal cars, 76 freight cars, for merchandize and use of road, 1 baggage and 1 new ladies car, 3 second class passenger cars altered to double their former capacities, and 33 eight wheeled coal engine wood tenders

Five hundred and forty-eight wooden coal cars, originally 3 15 tons capacity, have been enlarged to carry 4 65 tons, as alluded to in my last report.

Every locomotive engine owned by the



company, with its maker, present condition, etc., is recorded in statement E, and their cost of repairs and working, in statement F. The repairs of coal, merchandise, and passenger cars, are exhibited in statement G, with the items of wages, materials, etc. The cost of hauling coal for the past year is shown in detail in statement H. It has amounted to 39 39 cents per ton. The chief causes of this increased cost of 1 8 cents per ton over last year, are, the great decrease of coal tonnage from the cessation of business of some of the lateral railroads, in consequence of the freshet in May; and the great falling off in demand for coal in August and September, thus diminishing our business, while the causes were too temporary to justify a discharge of men.

Other causes contributed to the same result: the increased cost of wood—the irregularity in the coal business, by a larger proportion of coal being consigned to the city of Philadelphia, causing engines and their crews to lay over more frequently for want of trains; and the increased cost of repairing engines at night, and over hours, rendered necessary from the failure of delivery of 4 first class engines, contracted for last winter, to be received by June 1st of this year. The cost of transporting passengers and merchandize is contained in detail, in statements K and L. Statement M shows the items of cost of transportation over the State railroad for the past year.

A table of the supply of coal from the various sources in Schuylkill county, with the points on the Reading road to which such coal was consigned, will be found in statement N.

The necessity for adopting and using almost exclusively, anthracite coal for fuel, has engaged, for several years past, the most serious attention of the undersigned. Numerous experiments have been made to burn this staple of the road in its locomotive engines but hitherto without that success which would warrant its adoption in engines of the present build. An engine and boiler for this purpose, invented by the undersigned, on principles entirely new, are now building in the Reading workshops, and with every prospect of success in accomplishing the above result.

**Roadway Department.**—Comprising repairs and renewals of track, bridges, depots, water stations, etc., for the year ending November 30, 1846.

Total cost of repairs and renewal of superstructure of bridges and road bed for the year.

Wages of all laborers, including foremen	\$60,890 11
Wages of mechanics	15,936 45
Iron, steel, tools, etc.	4,837 50
Timber for rewalls and repairs	19,319 49
Clearing snow	887 62
Masonry	4,327 27
Watchmen in tunnels	784 56
Sundries, oil, rents, etc.	3,527 26

\$110,510 26

To which must be added, what would have been the cost of repairing and strengthening of

wooden structures, replaced during the year with stone and iron bridges, . . . . . 4,460 50

Actual cost of repairs of track and bridges . . . . . \$114,970 76

**Engines, Cars, and Stationary Machinery.**  
Transporting, Sawing, and preparing Materials, etc.

Engines, cost of wages, repairs, fuel, etc.	\$7,431 20
Cars, repairs, oil, tallow, etc.	1,204 52
Sawmill, repairs, fuel, attendance etc.	1,006 14
Stationary engines, and other machinery, materials and work,	1,601 00

\$11,242 86

**Water Stations, Depots and Engine Houses.**  
Cost of keeping in order.

Timber, iron, painting, etc.	134 11
Workmanship, masonry, roofing and materials,	890 14
Sundries,	167 49

Total, . . . . . \$1,191 74

**Superintendence and Office Rent.**

Salaries of all officers and agents	3,028 67
Stationery, printing, etc.	247 44

\$3,276 11

**Railroad Iron.**—This item of expense has been in exact proportion to its original quality of make. The total number of bars removed and replaced during the year, has been 1506; of which 1249 were of the 60 lbs. rail, and 257 of the lighter rails, varying from 45 to 55 lbs. per yard—equal to 235 tons. Of these, 185½ tons were relaid in tracks at Reading and other depots and sidings, leaving 49½ tons of iron unfit for main tracks or sidings, worth \$35 per ton as old iron. But the actual cost of these 1506 bars replaced, may be thus stated:—

First\* cost of 235 tons of iron replaced at \$70, . . . . . \$16,450 00

Cr.

By 185½ tons of above, relaid and used, valued at \$50, . . . . .	9,275 00
By 49½ tons valued at \$50, worth as old iron \$35 . . . . .	1,732 50

Deduct . . . . . 11,007 50

Loss on above 1506 bars, . . . . . \$5,442 50

Equal to four-tenths of a cent per ton on the tonnage of the road for the year; which entirely confirms our predictions and anticipations on this subject.

**Watchmen at Bridges and Depots.**

Wages of all watchmen at bridges	9,529 01
Wages of watchmen at Pottstown depots and yard . . . . .	549 32

\$10,078 33

\* This iron was purchased some years since, at less than \$60 per ton.

### Recapitulation of Roadway Expenses.

Maintenance of way, track and bridges, . . . . .	114,970 76
Engines, cars, and machinery, . . . . .	11,242 86
Water stations, depots and engine houses, . . . . .	1,191 74
Watchmen at bridges and depots	10,078 33
Railroad iron, . . . . .	5,442 50
Superintendence and office rent	3,276 11

\$146,202 30

Deduct value of materials on hand, viz:

On hand Nov. 30, '46, 17,367 86

On hand Dec. 1, '45, 14,133 10—3,234 76

Total cost of roadway department for the year, . . . . . 142,967 54

In concluding the report of the Railway Department, I would state, that the road and bridges are at present in excellent order, after passing a tonnage amounting to 1,507,291 tons.

**Construction Department.**—Comprising all expenditures for new work, as stated and explained below.

**Track.**—Including cost of grading, superstructure, and laying down of main and turnout track, at the following points:

	Feet.
At Mount Carbon, for coal cars and workshops, . . . . .	722
Schuylkill Haven, for coal cars and workshops, . . . . .	1,122
Orwigsburg, for coal and wood cars, . . . . .	450
Port Clinton, do do . . . . .	768
Hamburg for coal and freight, . . . . .	813
Mohrsville, for coal cars, . . . . .	2,060
Between Mohrsville and Reading, for coal, lime and ore, . . . . .	1,054
At Reading, for coal and freight cars, coal shutes, wood train, and shops, . . . . .	8,073
Baumstown, for coal shutes, . . . . .	500
Pottstown, for coal and merchandize business, shops, and timber tracks, . . . . .	2,554
Norristown, for coal cars, . . . . .	2,142
Conschocken, for connection with Norristown Railroad, etc., . . . . .	3,445
Between Falls and Plane, part of double track, . . . . .	6,300
At Richmond, on North and Spur wharves, . . . . .	9,942
New Engine House and workshops, . . . . .	3,847
At other points, . . . . .	2,645

Total, . . . . . 46,437

Or 8.79 miles.

Total cost, including iron (except the rails) sills, labor, grading Pottstown yard, making 102,469 cubic yards embankment at Richmond North wharves, and all materials for above new tracks, coal shutes, switches, etc., \$82,172 18.

**Richmond Wharves.**—The northern tier of wharves, hitherto supplied with coal cars by horses, from the siding where left by the engine, at a great cost and delay, have been made to correspond with the new southern wharves. Long and convenient double tracks, of a total length of 8,570 feet, for this purpose, lead upon each wharf, which are worked altogether by locomotives, thus at-

taining the greatest economy and dispatch, when compared with the old method by horses.

A new Spur Wharf, 686 feet long, has been added on wharf No. 14; and new scales, shutes, planking, etc., with all the requisite fixtures, have been laid down on several of the other wharves. Total cost of all above work, \$32,756 19.

**Bridges.**—Under this head are included building stone arches, wing walls, and parapets, under the following bridges, originally of wood: Irish Creek, \$1,890 53; Big Dam, \$10,704 75; Shaeffer's, \$5,535 35; Pottstown Bridge, including nine stone arches and long side walls, \$12,676 04; Phoenixville, \$2,255 43; and Manayunk, \$6,314 60. Of these, five bridges are now nearly completed; and, when entirely so, will be rendered permanently secure, and relieved of all future charges for watchmen and repairs.

Heavy arch pieces have been added to the Falls Bridge, which is now in excellent order.

Total cost, including filling in of earth, \$89,789 25.

**Engine Houses, Depots, Workshops, Water Stations, Reservoirs, and Buildings generally.**—The business of the past season, increasing far beyond the facilities hitherto afforded, under these heads, rendered immediate and extensive additions essentially necessary.

Serious interruptions to the working of the road, involving delays to the coal trade, had been experienced during the past year. Engines have been frozen up and subjected to heavy repairs in consequence of exposure to the weather, for want of engine houses and workshops: great expenses have been incurred at the Reading and other depots, by the employment of a large force of hands, required to change locomotives, freight, wood, and passenger cars on the turnout tracks, between the main tracks and the workshops and freight houses.

The business of the road, and the passage of trains, had been stopped for want of water at one of the principal stations on the line, (since supplied with a stationary steam engine,) and, in some instances, loads of freight have been refused, for some days, at the old Reading freight house, previous to the erection of the present commodious merchandize depot.

The road is now relieved of such delays, and most of their contingent expenses.

One large engine house, capable of holding at the same time, 20 first class engines and tenders, and most conveniently arranged for entering and leaving, watering, etc., has just been completed; as also buildings for the same purpose, of less capacity, but proportioned to the wants of the stations, at Mount Carbon, Pottstown and the Falls. At Reading, where the main workshops of the Company have been located, the following important and efficient improvements have been constructed during the year: A merchandize depot, 124 feet by 84 feet, standing 350 feet from the main track, furnished with doors allowing 11 wagons to be loading and unloading at the same time, and approached

from either end of the line by two tracks forming a Y.

A shop for repairs of iron coal cars and boiler iron work, 104 by 82 feet.

An addition to the main machine shop, 190 feet by 67 feet. A reservoir, holding 700,000 gals. water, supplied by a steam engine, for the use of the workshops and passing trains. A time-keeper's office, water and wood stations, &c.

The stations at Port Clinton, Mohrsville, Douglassville and Pottstown, have been furnished with an ample supply of water, by stationary engines, worked at trifling expense from the refuse fuel of the stations; at which points large and convenient wood sheds and cisterns have been also erected.

Efficient workshops, connected with the engine house, 221 feet by 63 feet, have been built at Richmond, for repairing and refitting engines and cars at that terminus of the road; and at Pottstown, where the work of the Road Department is chiefly done, spacious shops have been built, one 151 by 81 feet.

The road will therefore commence the business of the coming year, with facilities for every branch of its operations of the most ample character, requiring a trifling, if any, future expenditures.

Total cost, \$123,727 24.

**Transportation of Materials.**—Including wages of men, fuel, oil, water, repairs of engines and cars, and all expenses of transporting materials for Construction Department along the line, such as stone, timber, brick, iron, etc., etc. Total cost, \$15,840 36.

**Vertical Walling.**—Expenses of completing Valley Forge walls, and rebuilding walls at Falls, rendered necessary by use of double track, \$8,081 42.

**Iron Bridges.**—Including construction of 6 bridges, built with the "Howe" iron truss, in all 220 lineal feet; and 3 bridges now making, of 187 lineal ft. Am't. \$15,439 47.

**Tunnel Arching.**—Of Pulpit Rock Tunnel, at Port Clinton, roofing 180 feet. Cost, \$6,700 44.

**Machinery, Turning Platforms, and Hardware.**—Including new lathes, boring mills, drill presses, tilt-hammers, vices, and tools of all descriptions, for shops at Schuylkill Haven, Reading, Pottstown, and Richmond. Files, wrenches, anvils, leads and paints, etc., etc., in amount \$38,538 78.

**Lumber.**—For yard and depot, fencing, sills and frames, wood sheds, etc., etc., amounting to \$13,041 67.

**Sundries.**—Switch watchmen, during construction of stone bridges, stationery, and all items not included in above heads, \$4,862 95.

The limits of this Report prevent a more detailed explanation of the various heads of expenditure of the three departments. Should any further information be required, it can be readily furnished from office notes carefully recorded.

I am, most respectfully,

Your obedient servant,

G. A. NICOLLS,

Engineer and General Superintendent  
Philadelphia and Reading Railroad.

READING, Pa., December 1, 1846.

# Recapitulation of Expenditures of Construction Department for the year.

Track,	\$82,172 18
Richmond wharves,	32,756 19
Bridges,	89,789 25
Engine houses, depots, workshops, and water stations,	123,727 24
Transportation of materials,	15,840 36
Vertical walling,	8,081 42
Iron Bridges,	15,439 47
Tunnel making,	6,700 44
Machinery, including turning platforms, etc.	38,538 78
Lumber,	13,041 67
Sundries,	4,862 95
Engineering Dep., salaries, office expenses, stationery, etc.	8,163 87
<b>Total,</b>	<b>\$439,113 82</b>

## Statement A—Business of the Philadelphia and Reading Railroad, for the year ending Nov. 30, 1846.

TONNAGE.	
Coal transported, tons of 2240 lbs. ....	1,188,258
Merchandize transported, tons 200 lbs. ....	74,971
Materials for use of Road, including earth, gravel, timber, rails, sills, cord wood, stone, brick, iron, etc., in tons of 2000 lbs. ....	101,471
Total tonnage of Road for the year, including weight of passengers, in tons of 2000 lbs. ....	1,515,473
Total amount of Coal transported to date, tons of 2240 lbs. ....	2,693,975
Total tonnage of road to date, tons of 2000 lbs. ....	3,703,521

PASSENGER TRAVEL.	
Total number of passengers during the year .....	88,641
Total number of miles travelled by the same .....	4,154,214
Equal to, in through passengers, over whole length of Road .....	45,155
Total number of passengers transported, to date .....	551,953

RECEIPTS OF ROAD.	
From freight on Coal .....	\$1,600,667 09
" " Merchandize .....	137,543 52
" " Passenger travel .....	141,749 07
" " Transportation of U. S. Mail, and other sources .....	9,713 84
<b>Total receipts .....</b>	<b>\$1,889,713 52</b>

## Statement B.—Gross Expense of Transportation Department, for the year ending, Nov. 30, 1846.

RUNNING ACCOUNT.	
Wages of engineers, firemen, conductors, brakemen, despatchers, time-keepers, oilers and turning screws ..	\$105,628 27
Wood, 60,006½ cords .....	166,643 12
Loading and unloading wood, wharfage, agents, &c. ....	13,044 35
Cutting wood .....	22,374 82
Oil, 45,672½ gallons .....	38,819 26
Tallow and grease, 40,162 lbs. ....	2,990 44
Hauling across Schuylkill Bridge on State Road, and expenses on ditto, in Philadelphia .....	1,794 33
Tolls paid State Road .....	28,643 50
Coal left short of consignment and used by Company .....	1,178 07
Renewals of articles on trains, lamps, ropes, etc. ....	5,459 78
Cotton waste .....	1,877 75
Coal fuel for engines .....	1,136 16
Sundry goods lost or stolen, etc. ....	1,496 68
<b>Total .....</b>	<b>\$391,086 53</b>

EXTRAORDINARY EXPENSES.	
Salaries of 3 agents on lateral railroads, apportioning and distributing Coal cars .....	\$2,641 38



## WORKSHOP ACCOUNT.

Wages of all machanists, blacksmiths, carpenters, boiler-makers, moulders, time-keepers, and all mechanics and laborers.....	\$120,230 32
Bar iron, steel, tools, and hardware....	31,679 56
Tires and axles.....	14,325 07
Pig metal, iron, lumber, hay, etc., for foundry.....	10,030 92
Copper, spelter, tin, lead, etc.....	5,206 14
Timber and lumber.....	7,607 08
Anthracite Coal.....	1,915 52
Bituminous Coal.....	4,010 80
Work done elsewhere.....	1,201 03
Other materials, charcoal, leather, etc.....	3,919 80
Sundries.....	233 57

\$200,359 81

## DEPOT ACCOUNT.

Wages of hands.....	\$27,928 45
" watchmen at depots, wharves and switches.....	5,457 93
Coal for water stations and pumping water.....	1,145 15
Materials and work.....	1,924 28
Sundries.....	750 56

\$37,206 37

## SUPERINTENDENCE ACCOUNT.

Salaries of all officers, clerks, and agents, in department.....	\$17,128 85
--	-------------

## OFFICE ACCOUNT.

Advertising in, and subscription to, papers.....	179 35
Stationery and printing.....	2,274 57
Furniture, rent, and all materials.....	709 74
Sundries.....	229 69

\$3,453 35

Gross expenses of Department.... \$651,876 29

Statement C.—Net Expenses of Transportation, for the year ending, November 30, 1846.

Transportation of 1,188,258 tons of coal from coal region to Richmond, junction with State road, and other points, at 38.89 cents per ton..... \$462,113 54

Expenses of transportation between junction with State road, and Company's Depot in Philadelphia, including tolls paid State and City, hauling across the Schuylkill Bridge, pay of agents, etc..... 39,544 86

Transportation of 74,971 tons merchandise, between Pottsville, Reading, and other points, and junction with State Road, at 75.6 cents per ton..... 56,678 08

Transportation of 45,155 through passengers, between Pottsville and junction with State road, at 44.4 cents per passenger..... 20,048 82

Superintendence, including salaries of all officers, clerks, and coal agents at depots..... 17,617 63

Expenses of delivering coal and freight, and hauling cars for all purposes, at Reading and other turnouts and stations, owing to an increase of business beyond the facilities at first provided..... 6,516 98

Wages of watchmen at wharves, depots and switches..... 5,798 96

Office expenses, stationery, newspaper advertising, etc..... 4,671 40

Work and materials for depots and stations..... 1,379 90

Salaries of agents, etc., on lateral railroads in coal region..... 2,641 38

Sundry expenses, extra engines, &c..... 3,670 59

Actual net expenses for year..... \$620,682 14

Add for materials on hand, Nov. 30, viz: Wood..... \$10,232 50

Bar, boiler, and sheet iron, steel..... 4,193 75

Iron Castings..... 3,075 00

Pig metal..... 1,950 00

Car gearing, wheels, axles, springs, &c..... 13,559 50

Engine gearing.....	5,809 33
Engine tires.....	6,480 00
Timber and lumber.....	3,470 00
Bituminous coal.....	1,268 00
Anthracite coal.....	440 00
Copper, lead, tin, brass, &c.....	3,147 80
Iron for tilt hammer.....	7,415 00
Iron for foundry.....	1,556 25
Tools, &c.....	697 50

\$63,294 63

Deduct materials on hand, Dec. 1, '45... 32,100 48

\$31,194 15

Total expenses..... \$651,876 29

Statement D.—Number of Engines, Cars, and all other Running Machinery on the Road, Nov. 30, '46

## LOCOMOTIVE ENGINES.

39 First Class Engines.	
24 Second do. do. (4 altered to first class, and 8 Third do. do. 1 sold since last Report.)	
1 Second do. do. (used only for kyanizing timber, "Delaware.")	
73	

## COAL CARS.

	Weight Empty.	Capacity.
1 Eight wheeled iron coal car....	4.7	11.0
3,019 Four do. do. do. ....	2.43	5.0
1,042 Four do. wooden do. ....	2.2	4.65
497 Four do. do. do. ....	2.05	3.2
4,559* (Tons of 2240 lb.) Average, 2.33	4.725	

## FREIGHT CARS.

5 Eight wheeled covered House, including 2 for use of Road; 47 do. do. open platform do. do. 17 do. do.; 156 four do. covered house do. do. 7 do. do.; 274 do. do. open Truck do. do. 206 do. do.—432.

## PASSENGER CARS.

13 Eight wheeled Passenger Cars; 1 four do. do. do.; 3 eight do. Baggage Cars; 2 four do. do.—19.

In addition to the above, the Company own: 34 eight wheeled Box Cars, extra Wood Tenders for Coal Engines; 2 small Express Locomotives, "Ariel" and "Picayune," for use of officers and lateral roads; 2 small Passenger Cars for use of main and lateral roads; 11 Stationary Engines at Depots for driving machinery and pumping water, of 35, 14; 2 of 12; 2 of 8; 3 of 5; 1 of 6; and 1 of 4 horse power, respectively; 2 portable Wood Cutting Steam Engines for Reading and Richmond depots; 50 Horses, chiefly for delivering Coal on Richmond Wharves, and in Philadelphia, expenses of which are paid by consignees.

Condensed Table, showing Disposition and Employment of the Engines belonging to the Company.

How Employed.	1st.	2d.	3d.	Total
In daily use, in good order, on R. R. or lateral road in coal regions...	29	15	6	50
In workshops, under repair.....	7	3	1	11
In good order, ready for use.....	2	5	1	9
Altering to more efficient engines.	1			1
Out of use at present, "Delaware"		1		1
Totals.....	39	25	8	72

Of which were made by	
Baldwin & Co. Philadelphia.....	32
Norris, Philadelphia.....	4
Newcastle Manufacturing Company.....	8
Eastwick & Harrison.....	2
Locks & Canals, Lowell.....	11
Doutter & Co. Reading.....	1
Ross Winans, Baltimore.....	1
Rebuilt by the Company.....	8
Braithwait & Co. London.....	5
	72

Statement F.—Work and Repairs of Locomotive Engines owned by the Philadelphia and Reading Railroad Company, for the year ending Nov. 30, 1846.

\* 67 Wooden Coal Cars have been altered and used for Freight Cars.

How employed	1st.	2d.	3d.	Total.
Reading railroad, transp. depart.....	552,603	264,595	76,484	893,682
Reading railroad, construct. dept.....		18,876	21,385	40,261
Reading railroad, roadway depri.....		2,429	18,308	20,737
Total R. R. On lat'l. roads in coal regions...	552,603	285,900	116,177	954,680
Total.....	552,603	43,631	482	49,422
	637,912	329,531	116,659	1,014,102

Total No. tons hauled one mile, exclusive of tender,..... 253,816,540

Average weight of loaded coal trains down, exclusives of engine & tender..... 602.9

Do. do. empty up do do... 197.7

Do. do. passenger trains do do... 37.6

All tons of 2,000 lbs

## COST OF REPAIRS OF ENGINES.

Wages of mechanics.....	\$27,001 86
Materials, iron, steel, brass, etc.....	15,926 84
Superintendence, tools, paints, oil, etc.....	4,302 90

Total cost..... \$47,231 60

Total No. of miles run by all engines owned by the company, from May, 1838, to November 30th, 1846..... 3,285,067

Total No. tons hauled 1 mile between same dates..... 640,855,755

Statement G.—Cost of Repairs and Renewals of Coal, Freight and Passenger Cars, for the year ending November 30th, 1846.

## COAL AND FREIGHT CARS.

Wages of all mechanics.....	\$28,773 79
Iron, steel, brass, and all metals.....	33,937 30
Timber.....	7,550 14
Superintendence, tools, paint, oil, etc.....	7,026 10

Total \$77,287 33

No. gallons oil used by coal and freight cars, during the year, including train lamps..... 20,393

No. lbs. tallow, do do do 35,016

## COST OF REPAIRS AND RENEWAL OF PASSENGER CARS.

Wages of mechanics.....	\$2,310 70
Iron, steel, timber, etc.....	2,230 23
Superintendence, tools, paint, varnish, etc.....	567 59

Total \$5,108 52

No. gallons oil used by passenger cars during the year..... 375

Number pounds of tallow..... 388

Statement H.—Items of Cost, in detail, of Hauling Coal per round trip of 188 miles, from Coal Region to Tide Water and back with empty cars; transporting an average load of 360 tons of coal each train.

No.	Des.	Rate.	Am't.
2	day	2.50	\$5.00
2	do	1.50	3.00
2	do	1.50	3.00
5.9	do	1.05	6.20
14.92	cords	3.89	58.04
4.95	gallons	.90	4.46
360	tons	14	5.40
188	miles	5.1	9.59
360	tons	6.05	21.78
360	do	.08	2.16
15	M galls	6	.90
360	tons	14	5.40
360	tons	2.6	9.36
360	tons	.34	1.22

\$140.01

**Statement K—Items of Cost in detail, of Running Trains, per daily trip of 92 miles.**

Items of Cost.	No.	Des.	Rate.	Amt.
Wages of Engineer.....	1	day	1 80	\$1 80
do. " Firemen.....	1	day	1 00	1 00
do. " Conductors.....	1	day	1 50	1 50
do. " Brakeman.....	1	day	1 00	1 00
Wood for fuel.....	2-45	cords	4 00	9 80
Water used.....	2½	M galls	6	15
Oil for engine & tender..	9	gall	90	81
Oil for cars.....	9	gall	90	81
Repairs of engine.....	89	miles	3 9	3 47
do and refitting cars.....				8 04
Hands at depot.....				2 27
Sundries for train.....				87

\$31 52

Equal to, at 71 through passengers per train, 44 4 cents per passenger.

**Statement L—Items of Cost, in detail, of Running Freight Trains, per daily trip of 92 miles.**

Items of Cost.	No.	Des.	Rate.	Amt.
Wages of Engineer.....	1	day	2 50	\$2 50
do. " Fireman.....	1	day	1 30	1 30
do. " Conductor.....	1	day	1 35	1 35
do. " Brakeman.....	3	day	1 00	3 00
Wood for fuel.....	3.7	cords	3 89	14 39
Oil for engine and tender..	1-9	galls	90	1 71
Oil and grease for cars.....	65	tons	1½	97
Repairs of engine and tender.	90	miles	6	4 50
do. " cars.....	65	tons	5½	3 57
Depot hands, and other depot expenses.....				13 09
Water used.....	4	M galls	6	0 24
Renewals of sundry articles..	65	tons	3	1 95
Goods lost, stolen or damaged				56

\$49 13

Equal to 75-6 cents per ton.

**Statement M—Cost of Hauling over State Road, for the year ending, November 30, 1846.**

Amount paid State for Tolls.....	\$28,643 50
do. do. City Corporation for Tolls	350 00
Cost of Hauling across Schyl. Bridge..	1,166 38
Wages of Brakemen over State Road...	673 15
do. Agents in Broad Street.....	540 50
Repairs of Coal Cars over State Road...	1,389 50
do. Passenger do. do. do. do. do.	330 26
do. Freight do. do. do. do. do.	675 70
Cost of Engine, Hauling Coal Cars, and arranging Trains for State Road Engines, at junction with State Road...	5,444 25
Sundry expenses during year, &c.....	331 62

\$39,544 86

**Statement N—Points of Supply and Distribution of Coal on the Philadelphia and Reading Railroad, for the year ending, November 30, 1846.**

Amount of Coal received from various lateral railroads in coal regions.	TONS.
West Branch Railroad, at Schuylkill Haven.....	472,633
Mount Carbon and Port Carbon Railroad, at Port Carbon, from Valley and Mill Creek Railroads.....	405,329
Mount Carbon Railroad, at Mount Carbon	228,497
Little Schuylkill Railroad, at Port Clinton	81,799
<b>Total.....</b>	<b>1,188,258</b>

**Where Delivered on Line of Reading Railroad.**

Station or Turnout.	Total.
Orwigsburg.....	75
Port Clinton.....	6
Hamburg.....	971
Mohrsville.....	1,300
Between Mohrsville and Reading.....	1,042
Reading.....	35,738
Baumstown.....	1,854
Douglaville.....	1,433
Pottstown.....	3,696
Royer's Ford.....	318
Phoenixville.....	23,853
Valley Forge.....	1,480
Port Kennedy.....	4,079
Norristown.....	11,988
Lime Kilns below Norristown.....	1,362
Conshohocken.....	23,604
Spring Mill.....	2,566
Manayunk.....	6,930

Falls.....	2,996
Germantown.....	5,362
Nicetown.....	5,720
Trenton Railroad.....	2,907
Junction with State Road.....	6,181
Philadelphia.....	198,582
Richmond.....	844,216
<b>Total.....</b>	<b>1,188,258</b>

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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**AMERICAN RAILROAD JOURNAL.**

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, February 13, 1847.

**INDEX FOR 1846.**

The Title Page and Index for last years' volume were mailed with the Journal (No. 5) for Jan. 30th.

**Reading Railroad Report for 1846.**

We continue in this number, this important report, which was commenced in our last. It is, as last year, full and explicit. By referring to the report for 1845—see R.R.J. of March 14, 1846, page 170—it will be seen that the gross receipts for transportation, of all kinds, in 1845, were \$1,060,381; and the estimate for 1846 was, \$1,725,000—being an increase over the year 1845, of \$664,619; and by referring to the report now published, it will be seen that the receipts for transportation during the past year are \$99,713, or \$164,713 more than the estimate of the managers, and \$829,332 greater than in 1845. It will also be seen that the ability of the company, for increasing its business hereafter, will be in proportion to the increased demand for coal, if the shareholders act judiciously. In 1845 they had 54 locomotives and 3104 cars for coal; and now they have 72 locomotives—most of the new ones are of the largest and most improved class—and 4559 coal cars—mostly of iron, averaging 4-7 tons each; and all the other improvements of the company are of an equally permanent character, and upon a plan equally extensive.

It appears that 1506 bars—or rails—equal to 235 tons of iron—have been removed from the two main tracks during the past year—of which 185½ tons, valued at \$50 a ton, have been relaid in side tracks, and at depots along the line; and the balance, or 49½ tons disposed of at, or is worth, \$35 a ton—showing a depreciation on this amount of \$11,007.50, and equal to four-tenths of a cent per ton on the entire tonnage of the road for the year.

Iron bridges have, it seems, been introduced with entire success, and the old wooden structures are being renewed with stone, as they require to be rebuilt; and we do not hesitate to say that the day is not distant, when anthracite coal will be used instead of wood in their locomotives, as we learn that a plan of engine has been devised by Mr. G. A. Nicolls, the engineer of the road, which promises success.

Great improvements have been made at the Richmond—or Delaware river—depot. A spacious new engine house and machine shop have been erected

there; and, indeed, the road is in every respect prepared for doing an increased business the ensuing year, without any material addition to the machinery.

The net earnings of the road for the year were \$1,037,795.21, and the balance, after paying interest on loans, taxes, etc., was \$402,202.29—an amount which, if divided among the shareholders, would give them upwards of 12½ per cent. on the \$3,120,000 of stock issued—but it seems that the company have decided—and wisely, too, we think—to reserve this fund for the increase of machinery, and to pay off the loans as they fall due, and thus reduce their liabilities; and in lieu of making dividends in money, it is proposed to issue new stock to the shareholders for the amount.

It is peculiarly gratifying to us, and to many others, we are sure, to see this noble work—which has done so much, within the past three years, to cheapen fuel—thus assuming its proper position—to see it showing what may be done on a railroad properly constructed, and managed with spirit and energy.

A comparison of the business of the past two years will enable the candid observer to estimate, pretty accurately what will be the business of the current and following years. It needs not the foresight of a prophet to predict that the most sceptical on the subject, will, at an early day, be compelled to acknowledge that this road is without a parallel in the world. Its peculiar position, and the rapidly increasing consumption of coal, and manufacture of iron on its line, will always insure it an amount of business without a parallel. The great difficulty will, hereafter, be to increase its means of performance in a ratio with the demands upon it, unless early measures are taken to lay down a third track. It will not only have the business of its own region, but it must also receive large accessions of business from the interior of the State, and ultimately from the lakes, by the way of the Erie and Sunbury railroad.

It was predicted by many, ten years ago, that the Reading railroad would never be completed, and by others that, if completed, it would not pay a fair interest on its cost; yet we see that it has been completed, and, though only in its infancy, has earned more during the past year than six per cent. on its enormous cost; and we shall see more; we shall see, when it has a third track, and within ten years, that it will divide over eight per cent. on fifteen millions of dollars. This, it may by some be said, is another prediction; it is a prediction, however, which will become matter of history in a few years. We therefore again suggest to the rival companies, which are about to contend for the trade of the Schuylkill valley, that they come to an amicable arrangement in relation to the rates of transportation, and that they charge a price which will give each a fair return upon their investment. In such a course the coal consuming community will, we are quite sure, cheerfully sustain them. It is very evident that the increase of business in the Schuylkill valley, and its tributaries, will, in a very few years, require facilities beyond the present capacity of both works. Let them, then, adopt such a course as will be just to themselves and liberal to the community.

**Bridge over the Illinois.**

The Legislature of Illinois have passed a bill providing for the erection of a bridge across the narrows at the foot of Peoria lake, at the city of Peoria. This bridge is to cross at the place where William L. May now keeps a ferry, and will be of incalculable



able advantage to the city of Peoria, as well as to all the country surrounding it. Ample provision is made in the law to protect commerce, and insure a safe passage for every description of water craft.

#### Another Rally.

The last number of the Portland Advertiser says, that: "Another unexpectedly large and enthusiastic meeting last night, at the City Hall, placed the crowning consummation upon our adventure in the Lewiston and Waterville Railroad. Accidental circumstances retarded this result a few days—though it was abundantly pledged and assured—and last evening, on the final report of the Subscription Committee, a warm and substantial interest displayed itself. With most encouraging applause, the subscription of PORTLAND was carried up to one hundred thousand dollars, and a considerable sum beyond."

#### Anthracite Coal Market.

The "Ledger" states that the stock of coal east of New York is very small indeed, scarcely equal to the wants of consumers. In New York the supply, considering the soft, weather, is about sufficient.—Dealers begin even to think of having some left over. They find that foreign coal, which is abundant, and more arriving as ballast in almost every ship from England, very seriously interferes with the sales of anthracite. The best English lump coals are sold in New York at \$7 per chaldron of 36 bushels, 2800 lbs. Anthracite is \$6.50 per ton of 2000 lbs. (cartage extra in both cases.) For the same weight, viz: 2000 lbs., the price of English coal is \$5. Pictou coal is very dull at 50 cents less. This disparity will readily lead to the conclusion that the foreign articles must seriously interfere.

In Philadelphia, and along the line of the Schuylkill, consumers are supplied chiefly as wanted, there being no accumulations. But the wharves at Richmond are being filled up with coal very fast, waiting the opening of the spring trade. The coal market was never perhaps in a more healthy condition.

#### Illinois Canal.

The Sangamo Journal, of the 14th instant, states that since this work has been under the new direction, 604,000 dollars have been expended upon it, and that the estimate for its completion exceeds, by a trifle, 707,000. The Journal says further: "The bondholders will be able to finish the work for about 1,300,000 dollars—being about 300,000 less than the original estimate; which it is believed will be effected by September of the present year. The canal has a surface of 60 feet and a depth of 6 feet. The Illinois river during a good part of the past season has had but little more than two feet water upon its bars—rendering its improvement (to realize all the advantages which we have anticipated from the canal) absolutely necessary."

#### Railroad Scales.

One of the singular results of the great improvements in transportation by Railroad and Canal, is the invention of Scales of enormous capacity. Messrs. Ellicott & Abbott, of Philadelphia, advertise Scales "for weighing loaded cars in trains or singly." They say:

"The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extended across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad. We are prepared to make scales of any size to weigh from five pounds to two hundred tons."

#### American Railroad Matters.

The citizens of Waterville, Me., had another crowded rally on the 23d ult., in reference to their railroad. The town hall was filled to its utmost capacity, and nothing, it is said, could exceed the spirit and enthusiasm of all present. Eloquent and able speeches, of an animating and encouraging nature were delivered, and the speakers were continually interrupted by the loudest bursts of applause. The books being opened, the citizens, most of whom had subscribed very liberally before, stepped forward one after the other, and amidst shouts of approbation, made each a generous increase to their subscriptions. In the course of a very brief time, the sum of ten thousand dollars was added to the amount already on the books. The whole actual subscription for the upper road now amounts, as far as we can learn, says the Gardiner Blade, to about \$400,000—the sum with which the corporators have voted to break ground. There is no doubt that the work will be commenced in the spring, as early as the snow will permit.

The following table exhibits the healthy condition of the Boston and Albany road. The receipts are upon freights shipped from the East Albany depot. The aggregate income of the road, for the past 12 months, exceeds one million of dollars. The amount collected on freight forwarded from East Albany from January 1st, 1843, to December 31st, 1846, is as follows:

1843.	1844.	1845.	1846.
\$167,057 12	\$223,572	\$268,450 06	\$312,940 13
The increase of 1844 over 1843 is.....\$56,484 88			
The increase of 1845 over 1844 is.....44,878 06			
The increase of 1846 over 1845 is.....74,490 07			
The increase of 1846 over 1843 is.....175,853 01			

By the above it will be seen that the average annual increase for the last three years is nearly 40 per cent., and for the year 1846 over 1843, upwards of 100 per cent.

The city council of St. Louis, Mo., has passed resolutions asking permission of the legislature to borrow half a million of dollars on the faith of the city, to be loaned to a company to be formed for the purpose of constructing a railroad from St. Louis to the Ohio, with a view to a future connection with the Baltimore and Ohio railroad, or to some point on the lakes. The resolutions are to be transmitted to each of the Governors of the States of Missouri, Illinois, Indiana and Ohio, with a request that they be laid before the respective legislatures thereof; and also to each of the Mayors of Springfield, Cincinnati, Columbus, Pittsburg, Baltimore, Philadelphia and Boston.

The Cheshire railroad has recently contracted with Davenport & Bridges, of Cambridgeport, Mass. for six first class passenger cars, three second class and passenger baggage cars, and 100 freight cars to be delivered in July. A contract has been made with the Central railroad by the same well accredited builders, for a like number of passenger and freight cars to be delivered next fall. They have also contracted with the Northern, Concord, and other railroads now constructing or increasing their power and means of transportation, for cars to the amount of \$125,000.

The Boston Post says, "the work turned out by Messrs. Davenport & Bridges, speaks decidedly in their favor as skilful and faithful mechanics, whose vicinage to this city—the grand centre of railway movements—is an important advantage both to them and to railroad agents."

The Nashua and Lowell railroad company's petition for authority to construct a railroad in New Hampshire, has been summarily disposed of; but

the great questions of Danvers and Maine railroad connecting lines and the conflicting "air lines" to New York, cannot be thus easily pushed aside.—The Worcester railroad has recently issued a manifesto upon the subject of its branch to Milbury, or the germ of a line to Blackstone. Its Newton Falls line is now in operation.

The petitions for new railroads and branches to existing lines pour into the Massachusetts Legislature, who have a prospect of a long session, if all be fully and impartially heard.

The Albany Evening Journal is informed that Mr. Witt, the freight agent, sent off, one morning last week, 166 cars laden with flour, pork, etc., for the east. This is the largest train ever sent off in one day during the winter. The amount to be collected on them was \$3,101 93—a pretty good business for one day.

The stock for a branch from Old Colony railroad to Milton, has been subscribed. It is three miles long, and expected to cost \$60,000.

A proposition is now seriously entertained of a lease, by Maine and Eastern railroads, of the Portsmouth and Portland at six per cent., which has rushed the stock of the latter in a twinkling up to 98. A meeting of the stockholders was to be held on the 10th inst., "to decide if they will lease the road."

The earnings of the Michigan Central railroad in two months and six days, to December 1st, were \$99,550, or at the rate of \$510,834 per annum upon a cost of \$1,600,000. We learn that its cars are contracted for in its vicinage. The engineers have found the route from Kalamazoo to New Buffalo so favorable that it has been determined to run the road in a straight line through.

The works on the Providence and Worcester railroad are rapidly progressing, and will be open for trial by July next.

We are informed that the trustees of the Bath Academy have voted to subscribe \$2000 to the stock of the Portland, Bath, and Kennebec railroad.

The subscription to the Kennebec and Portland railroad is going on fairly. The Brunswick paper states that \$46,000 had been subscribed in that town, previous to the 23d ult., to the Kennebec and Portland road. Brunswick and Topsham were assessed \$60,000. Freeport had come up to \$13,000, being 3,000 more than her assessment. In Vassalboro', \$10,400 had been subscribed up to Friday last, and the returns not all in. This town was not drawn upon by the Directors in the apportionment of the \$500,000 to be raised on the route previous to the commencement of the road. Sidney has also subscribed upwards of \$10,000. At a meeting of the Directors in Brunswick, on Thursday of last week, returns were received of \$490,000 of the \$500,000 required on the route; but all the papers were not forward to them. It is known that the actual amount is much larger than this. (These subscriptions are exclusive of over \$250,000 subscribed out of the State.) The Directors determine to go ahead immediately.

We find the following table in a Massachusetts paper, and give place to it partly for the purpose of indicating the regularity with which, after the distance of six miles is attained, the rate of fare is placed at two and a half cents per mile, as near as may be for all distances, and also to show the names of the towns—not one of them known or distinguished for large population—through which this road is laid—a road, the stock of which is the highest with one exception, in the country. It is largely patronized of course, from the country beyond its interior

terminus. This road is now petitioning for leave to establish a depot in Boston.

Table of Distances and Fares over the Boston and Fitchburg Railroad.

From Boston to	Miles.	Total.	Fares.
Somerville .....	2	2	12½
Porter's .....	1	3	12½
West Cambridge .....	3	6	12½
Waltham .....	4	10	20
Weston .....	4	13	30
Lincoln .....	4	17	40
Concord .....	3	20	50
South Acton .....	5	25	65
West Acton .....	2	27	65
Littleton .....	5	32	80
Groton .....	5	37	90
Shirley .....	3	40	1 00
Lunenburg .....	3	43	1 00
Leominster .....	2	45	1 15
Fitchburg .....	5	50	1 25

Usual time from Fitchburg to Boston, 2½ hours.

#### St. Lawrence and Atlantic Railroad.

We are happy to learn, as we do, from good authority, that this road is getting on as well as is possible this winter. Our informant says that the progress is not so rapid as might be wished—in consequence of the snow, and light quality of work, on the "1st division"—but, adds the writer, "when Spring lets us get out once more, we will make up for lost time. Everything looks prosperous for our road, as well as for the Montreal and Lachine road. We are to have a Magnetic Telegraph from Montreal to Toronto, which will connect us with Boston, New York and Philadelphia, and it is in itself but a forerunner of a railroad from this city to the same place, to connect with the Great Western railroad, now in progress from Hamilton, west. We are likewise to have a Telegraph from Montreal to Quebec, and from thence to Halifax; so that we shall soon be able to give you the news by the steamers in advance of everything, and by way of Quebec, Montreal, Toronto, Buffalo and Albany; something of a roundabout way, to be sure—but it will answer every purpose.

"The St. Lawrence river has closed over at length to remain so, I hope, until Spring. The prospects for a bridge over the St. Lawrence are, I am happy to say, very flattering; and there remains but little doubt in the minds of the many, that the bridge will be constructed in spite of all obstacles. It is a gigantic project, and if successful, will be a lasting monument of the civil engineering of the 19th century. We have plenty of snow in this part of the world, and some cold weather; so cold that it would make some of the goodly inhabitants of your city wonder if they were to experience it. The thermometer this morning was only at 10 degrees below zero, but has been down (in Quebec) as low as 20 degrees, I believe, this winter. The new Governor General of Canada, Lord Elgin, is to arrive here to-day. He is a firm friend of internal improvements, so it is understood, and will place no obstacle in the way of the many improvements that are at present in prospective."

#### Atlantic and St. Lawrence Railroad.

At a meeting of the members of the St. Lawrence and Atlantic Railroad Company, held in Montreal, on the 30th ult., a report was made by the Directors, from which we copy the following paragraph regarding the Lewiston and Waterville railroad enterprise:

"The board has received the pleasing information of a charter having been granted by the State of Maine, for the construction of a railroad branch from the great artery at Lewiston, about 30 miles this side of Portland, to Waterville, on the Kennebec river; and the requisite stock for the organization of this company having been subscribed, the

work is to be commenced forthwith. A charter has also been granted for the extension of this road to Bangor, one of the largest and most thriving towns in the State, which will undoubtedly be commenced soon; and a further extension of the line is contemplated in the direction of New Brunswick. This will not only open an extensive market for western produce passing hence over the St. Lawrence and Atlantic railroad, but it will give to Canada a direct and expeditious communication with the lower provinces."

#### Anthracite Coal Trade.

We lately published from the Cumberland Civilian, some interesting statistics connected with the coal region, trade, etc., of Maryland. The Miners' Journal, of Pottsville, Pa., on Saturday week, comes to us nearly filled with reports, statistics, and general information concerning the great anthracite coal region of Pennsylvania, its trade, business, facilities, prospects, etc. From these we gather, that the amount of anthracite coal sent to market during the year 1846, was, 2,343,992 tons, being an increase over the previous year of 320,940 tons; that of this amount, Schuylkill county alone furnished 1,295,928 tons, which amount was almost entirely transported over the Reading railroad, the canal of the Schuylkill Navigation Company, (until within the past five years, furnishing the only means of sending coal to market from this region,) having been closed nearly the entire season in undergoing enlargement and improvement of its capacity, in order to an increased business the ensuing year, and hereafter.—Its present capacity is for 180 ton boats, formerly for only 60 to 65 tons. Since the commencement of the trade in 1820, when 365 tons was the amount produced, there have been an aggregate amount of 15,811,204 tons sent to market, of which Schuylkill county alone, since 1825, when its trade commenced, has furnished the proportion of 8,629,746 tons more than all other places added together.

There are 110 operators in this region, of whom 14 produced and shipped over 30,000 tons each; some of these as high as sixty odd thousand; 9 over 20,000 and under 30,000 tons; and 9 over 10,000 tons and less than 20,000. The total number of collieries within this region are 142, of which 107 are above water level, and 35 below. There are already 51 coal breaking machines in operation by steam power, where but two or three years since all coal was broken by hand, with the hammer.

There are 105 stationary steam engines employed in hoisting and breaking coal, varying in capacity from 10 to 90 horse power each, making, together, an aggregate power of 2,921 horses, or equal to the labor of 14,505 men, estimating five men as equal to one horse power.

Of railroads and canals connected directly with the anthracite coal trade of Pennsylvania, there are already completed of the former, 478 miles, including an estimated amount of 60 miles under ground; and of the latter, 417 miles—forming together an aggregate cost of \$33,920,000. Of this amount the Reading railroad alone, with its cars and locomotives, are put down at \$11,000,000; and the Schuylkill canal, enlarged, \$5,675,000. The Reading railroad has upon it, and in connection with it, 71 locomotive engines, and 4,549 coal cars, of which 3,020 are iron, and 1,539 wooden cars; besides 489 cars for merchandize and use of the road, and 17 passenger cars.

The product of coal from the Schuylkill region, it is supposed, will be largely increased the coming year, in consequence of the canal being completed and ready for operation so soon as the season opens.

#### Central Railroad.

We learn with pleasure, that the amount of subscriptions to the Pennsylvania Central Railroad, necessary to secure the Charter, have now nearly or quite been made up, and the Committee, in whose charge are the lists, will be ready to make their report at an early day. We have believed, from the first broaching of this great scheme, that the advantages to be derived from the consummation of this project, must prove of incalculable benefit to the city of Philadelphia—and were our citizens to subscribe individually, or were the city itself, in its corporate capacity, to subscribe for double the amount now asked for—upon which, in the shape of dividends, they should not receive the first cent—still, in our judgment, both our city and our people would realize a benefit, indirectly, from the establishment of this road, which would pay roundly for the outlay. This is our belief, and we hope to see the work pushed forward without unnecessary delay. The plan is immense, and we cannot but believe that the result will, in the end, prove proportionately profitable. In connection with this subject—we publish below—an article which we find in the *New Orleans Bulletin*, of the 28th ult., and which cannot fail to be read by the citizens of this State with deep interest. "As a business transaction," very correctly remarks a cotemporary, "this road is truly a master-stroke of policy." The "Bulletin" says:—

Among all the works of internal improvement that have been made or projected at the North, for the purpose of attracting the commerce of the West, there is none more calculated to injure New Orleans, and to benefit the projectors, than the Pennsylvania Central Railroad.

This work is to be a continuous Railroad, connecting Philadelphia and Pittsburg, and with the ulterior object of continuing it on to Cincinnati. The subscription we see is completed, and the work will now go on promptly and rapidly. In the discussions that have been had on the subject in Philadelphia, we observe that great stress is laid upon the probable quantity of travel over the road—this is of high importance to the stockholders, and will no doubt add greatly to their profits, but is a matter of indifference to us in New Orleans—it is the TRADE that it will divert from us, that we are to look to, and which should attract our attention.

We have hitherto been sleeping in New Orleans, on the subject of the Western trade—we are still sleeping, and in fancied security, are dreaming that our natural advantages are such, that nothing can divert the trade from this city—that God Almighty has done everything for us, and that we need not make any exertion for ourselves—it is a great, and if persevered in, will prove a fatal error, and we shall waken up some of these mornings and find the whole of that immense and rich commerce is flowing almost *en masse*, over the mountains direct to the Atlantic cities.

The natural advantages of New Orleans, are undoubtedly great, and particularly in the free navigation of the Mississippi and its tributaries, unburthened with tolls, to which the artificial works will always be subject; but then, these advantages are not altogether unincumbered—the navigation of the Ohio is interrupted by ice in the winter, and low water in summer. The produce is subject to



double freights, insurance and shipping charges, if to be sent coastwise, from New Orleans, and increased freight above the rates from the Atlantic ports, if destined for Europe.

We have already seen the immense diversion which the New York and Pennsylvania canals have made from the commerce which legitimately belongs to New Orleans—a diversion which is annually increasing and extending its sphere of operations. Cotton loaded boats from the Tennessee and Cumberland rivers, and tobacco and flour laden ones from St. Louis, are already to be seen stemming the current of the Ohio, with cargoes destined for New York, by the Ohio canal and the Lake route, or for Philadelphia, by the great Pennsylvania canal. These lakes and canals, however, are frozen in winter—frozen earlier and later than the river, which prevents a large additional quantity of produce from going by those routes, and causes it to come to New Orleans during the winter, (if an open one, like the present) or by the early Spring rise. Philadelphia, however, has determined to overcome this disadvantage, by the construction of a railroad that will, at all seasons, afford a certain and cheap conveyance to her store-houses of the various productions of the teeming West.

The produce that accumulates on the upper portion of the Ohio, during the low waters of summer and autumn, is shipped to New Orleans, by the first fall rise; and that which collects during the winter comes down on the opening of the navigation in the spring; but whilst our intercourse is thus suspended from the above causes, Philadelphia, by this new road, will be drawing these accumulations to her own warehouses. Even if this road was to terminate at Pittsburg, the injury to us will be great, but it will, as a matter of course, be extended to Cincinnati, and no doubt in a very few years be continued through Indiana and Illinois to St. Louis; each mile it is extended, renders it more desirable and advantageous for every section of the country to be connected with it; when once it reaches Pittsburg, Cincinnati will, of course, lose no time in placing herself in direct communication with the Atlantic.

One, among other obvious results, of a railroad from Cincinnati to Philadelphia, would be to deprive New Orleans of nearly the whole of the immense pork and lard trade, for, with this railroad existing, the hogs, after being killed and dressed in Cincinnati, will, in that state, be placed in cars, and in 36 or 48 hours will be in Philadelphia, where they can be cured at the same expense, and are at market by a land route of about 500 miles, instead of a double voyage by water of 3000 miles, saving double freights, double insurance and charges; the transportation is also saved on the barrel, salt and brine, the weight of which is at least one-half that of the meat; the article is at market in November and December, instead of April or May, whether it is intended for home consumption in the Atlantic ports (to which the largest portion of the pork is shipped from N. Orleans) or in foreign markets.

The freight by this railroad route to Cin-

ninnati, would not exceed half a cent per pound, which, (as it is paid only on the actual weight of the meat) would be only one dollar per barrel; and the whole cost of delivering it there would be much less than one-half at which it could be done via New Orleans.

We received, last season, in New Orleans, 47,303 hhd., 369,601 bbls. and 10,233,452 lbs. in bulk of pork, and 107,639 bbls. and 334,969 kegs of lard; and the loss of even one-half of this item of pork in the trade of the city, would be no trifling matter.

Though we have cited Pork (as being a prominent article of produce in the commerce of New Orleans) to show the injurious effects from the exertions that are making to divert the trade of the West from our city, they will have a like effect on the other leading articles, and will also greatly injure us in the supplies which we furnish to the West. This movement on the part of Philadelphia is a master-stroke of policy, for it gives her a double hold on the trade by both Canal and Railroad, keeping up a constant intercourse at all seasons and under all circumstances, and affording her great advantages over all her neighboring cities; we consider it the most important measure which that city has ever adopted to promote her permanent prosperity; and we have called attention to it that our citizens may be aware what is doing elsewhere calculated to affect the interests of New Orleans so injuriously, and that they may be prepared to suggest and adopt some measures of counteracting effect. We should recollect that it is not only one city, but that all the great commercial emporiums on the Atlantic are engaged in this struggle; and whilst they are all thus striving in zealous rivalry with each other, they are in fact unitedly working against New Orleans—as it is the natural and legitimate commerce of this city, which they are each separately endeavoring to appropriate to themselves.

#### Norris' Locomotive Steam Engine.

It must be peculiarly gratifying—says the last number of the New York Farmer and Mechanic—to every friend of his country, to observe the rapid progress of the mechanic arts, and the almost unrivalled combinations of skill and enterprise exhibited by many of her noblest sons, whose well-earned laurels, and increasing reputation, not only in our own land, but also abroad, so deservedly render their names a rich inheritance to the country of their birth and operations. To such men we look with an honest and heartfelt pride, and cannot but feel that to them we owe far more of real glory and true excellence, as a nation, than all the achievements of conquest could ever produce.

Among those to whom we are indebted for many of the most excellent specimens of American skill and well directed enterprise, and those which have attracted almost universal admiration abroad, none perhaps, at the present day, stand more conspicuous than William Norris, Esq., of Philadelphia, whose well known superiority in construction and excellence of workmanship, entitle his LOCOMOTIVE STEAM ENGINE to a more than passing notice.

The several valuable improvements which he has introduced in the construction of his engines, their great economy in regard to fuel, being adapted to anthracite, bituminous coal, coke, or wood, their

simplicity, and consequent small amount of repairs, and the facility with which such repairs may be made, together with the most perfect adjustment of the working parts, and the introduction of the "composition metal," by which a great saving in the amount of repairs is effected, combine so many desirable advantages, that we are almost at a loss which most to admire, their superiority of construction, their beauty of workmanship, or their speed and steadiness of motion.

Mr. Norris has also introduced the manufacture of locomotives of eight wheels, having the adhesion of four, on a new and improved plan, with the weight on the four equalized; (of all the various dimensions, classes, etc.) of a superior description, and which are attracting much attention.

In addition to the numerous orders which Mr. N. has filled for almost every State in the Union, he has furnished engines for England, Prussia, Austria, and other countries in Europe, all of which have given the highest satisfaction, and, judging from the numerous commendatory letters which these have elicited, from the agents of these governments, (some of which we have had the pleasure of perusing) they have been received even with enthusiasm. The following certificate of the Directors of the Vienna and Raab Railroad Company, Austria, as translated from the German, we give as a specimen of others. The Directors say:—

"The Locomotive Steam Engine ordered and received from the manufactory of William Norris, Esq., of Philadelphia, U. S., called the "*Philadelphia*," has completely succeeded in the performance required at her trials, and on a temporary Railroad, where there exists curves of 300 feet radius, with an elevation of two per cent. and more, the "*Philadelphia*" ran with all possible security and most extraordinary speed.

"The superior quality of these Engines, as well as the simplicity of their construction, the great facility of producing steam, their easy management, and particularly their economy in fuel, compared with the Engines built in England, etc., was the inducement of the Vienna and Raab Railroad Company to order more of these machines; and we do, with the greatest satisfaction, recommend them sincerely to all other Railroad Companies, which will require Engines.

(Signed) JOH. BARON DE SINA,  
IGNAS BARON DE DOLHOFF,  
Directors of the Vienna and Raab Railroad Co."

The following extract from the *London Mining Journal* of June 1, 1839, although it has before appeared, will be read with interest. It refers to the trial engine sent over by Mr. N., for the Birmingham and Gloucester Railway. The *Journal* says:

"As some doubts were entertained as to the correctness of the representations made, respecting these Engines, we have pleasure in giving the following particulars as to the Engine sent over to this country by Mr. Norris, and the work it has actually performed on the Grand Junction Railway, in conformity with the agreement to which we have alluded. The "*England*" weighs about eight tons, without water or fuel; she is also built much lower and smaller than the Engines commonly in use here, and has six wheels, the driving pair being four feet in diameter. The cylinders are ten and a half inches in diameter, and are enclosed in proper cases to prevent radiation—stroke eighteen inches. The machinery is of the simplest construction, and consists of a much smaller number of parts than we have been accustomed to see. The cylinders are placed on the outside of the framework, which allows the advantage of a straight axle, and the general appearance of the Engine more nearly resembles that of the old "*Rocket*" Engine than any with which we are acquainted. The Engine is got up in a most superior style, and is finished even to the most minute particular in a very beautiful and workmanlike manner, every part having been executed with perfect accuracy by means of self-acting machinery."

**Boston Railroads.**

A writer in a late number of the New York Commercial Advertiser, has the following in relation to the Boston railroads. It will be seen that all the railroads radiating from Boston, there is none which has not exceeded in its amount of traffic even the most sanguine anticipations of its friends. The fact that these roads carried in 1845 a number of passengers *three times as large as the population of Massachusetts*, will be quite surprising to those who have never seen the statistics on this subject. The statements of the writer are another proof of the well known fact that railroads *create* every where more travel than they at first *accommodate*. The remarks on the comparative advantages of railway and water conveyance are commended to the attention of such as are moved by the matter of steamboat competition.

Boston, Jan. 15, 1847.

In my last some account was given of the line of railroad between this city and Albany. It is now proposed to give some further statistics which go to show how far the actual result of the traffic on the railroads in this vicinity has exceeded the original estimates formed by the projectors in their commencement. Taking the Lowell, Worcester and Providence railroads, the freight business of 1845 exceeded the original estimates from three to five times, and the passenger business from six to nine times. These roads, together with the Eastern railroad, were all in operation in 1840, the latter having been opened in autumn of 1839. Their aggregate length is 160 miles. Their total aggregate receipts were

In 1840 .....	\$900,857
In 1846 .....	1,557,462

Showing an increase in five years of 72 per cent. or an annual average increase of 14 1-2 per cent.

The average receipts for the year 1845 were about \$9,500 per mile of road.

It appears that the increase in the traffic has been greater on passengers, as compared with the original estimates, than on freight. This may be said of railroads generally.—When first opened for general traffic, it was not supposed that they would reach a greater speed than 12 to 15 miles per hour; but it was soon discovered (in the progress of improvements in their construction, and in locomotives,) that a higher speed would be attained; and trains of passenger cars now move on most of the roads in this vicinity with a running speed of 25 to 35 miles per hour, exclusive of stops to take in wood and water, and to receive and discharge passengers; or the speed, including all stops, may be taken at 22 to 28 miles per hour. On well constructed roads it has been shown by experience that a speed of 30 miles per hour (including two stops) is a pleasant and agreeable motion, and may be maintained without any extraordinary expense.

It appears from official documents that the six railroads radiating from Boston, carried in the year 1845 about 2,400,000 passengers, which is nearly three times the population of the state. This great number of passengers is the result of the great facility the road affords in the ease, safety, certainty and speed of transit.

It can no longer be doubted by any man who will examine the subject with candor, that for all transportation requiring celerity and certainty, the railway is superior to the best water conveyance. With a moderate velocity, a vessel is easily propelled through water; but to increase the speed, produces an increase in the resistance of the water, equal at least to the square of the velocity. That is, a boat moving 20 miles per hour, requires at least four times the power that would propel it 10 miles per hour. Hence the great increase of power required to raise the speed of steamboats. A man will run through the air with very little resistance; but how fast would he run through water? The rail car moves through air, having no other difference except the friction, which requires one pound to move 270 pounds. A little reflection will convince any sensible man that steamboats can never compete with good lines of railroads for speed.

Viewing their superiority for the conveyance of passengers, or whatever requires high speed, with their capacity for every kind of transportation during the winter, (when rivers in this climate are closed) their great importance to our social, as well as our commercial interest, is obvious to the least reflection.

This city has largely reaped the benefits of this improvement, as also the country through which the railroads pass. To them it has truly been "an epoch," giving new vigor to every species of industry.

**Effects of the Snow Storm on Railways.**

The York and Newcastle, the Scarborough, and the Whitby and Pickering Railways were on Sunday, Monday and Tuesday last stopped up with snow. It covered the rails in some parts to the height of six feet, being about level with the tops of the carriages. This of course put a damper on steam power, but only for a time, the snow being by contrivances, quickly cleared away, notwithstanding the immense masses in which it had collected, and the trains ran when every other mode of conveyance was effectually stopped. Lately, the demand in York for coals has been greater than the supply, and the railway has been the only means for its conveyance. Had the railway not been in existence, York and other places must have suffered severely from want of this indispensable material. We are told that the passengers of one of the trains from Whitby were sadly put about by being unexpectedly stuck fast in the snow. The train became fairly imbedded, and could neither proceed nor return. Some passengers determined upon taking up their abode in the carriages—others, more bold and less inclined to conform to circumstances, came to the resolution of exploring a better retreat, and having penetrated through the snow, fortunately arrived at a cottage, the proprietor of which happened to be a kind of providore to a few working people residing in the place. His snow-driven visitors were just about as many customers as he could accommodate with provisions, and his cottage was occupied to every inch the flooring could hold. The

snow storm came unexpectedly, and was unusually heavy, and therefore the inconvenience attending it will perhaps not be felt again. At all events it has been demonstrated that railways are better enabled to meet it than the old mode of conveyance. No accident of any importance, that is, no injury to life or limbs, we believe, has been sustained by this heavy fall of snow.

**A Railway Train without a Passenger.**

—A circumstance occurred at the North Union Railway station at Preston, on Sunday last, to which there is probably no parallel since the opening of the railway. The train which leaves the Preston station at half-past four o'clock in the afternoon took its departure without a single passenger. Considering that the traffic from Preston is generally so extensive, it is rather singular that such an event should have happened. The different officers present when the train left, declared their belief that a similar circumstance had never before happened at that station.—*Manchester paper.*

**New Safety Luggage Vans.**—The Eastern Union has just received from Lancashire a supply of luggage vans, constructed on a principle that combines safety to the train, with accommodation for the luggage. The van is rather longer than a second-class carriage, considerably higher, and so firmly tied by iron-work, as to be capable of resisting a very powerful shock. The fore-breast is made of iron, the sides are surrounded by iron stags, the buffers are so strong, and the screws so powerful and elastic, that one would think they could not be snapped in a collision. The interior of the van is divided into compartments, so as to carry luggage for different stations; and the guard has a room in the end next the train, where he can use a power-break, and, at the same time, see a considerable distance before the engine. It is said that similar vans are to be placed on the London and North Western line.—*Herald's Journal.*

**Improvement of the Severn.**—The River Severn, which is subject to alternate floods and droughts, has, during the last two years, been greatly improved by dredging, and by the erection of gigantic weirs and locks. These works are now completed from Bewdley to Worcester, a distance of seventeen miles, and from Worcester to Gloucester the river is being deepened by dredging and closer embankment, the Severn Act limiting the erection of weirs within the county of Worcester. By the operation of dredging, long rocky shoals have been entirely removed. The hardest rocks are first blasted under water, and, therefore, easily removed by the dredging machines. Upwards of 200,000 tons of marl, rock, gravel and soil, have already been raised from the bed of the Severn by Messrs. Grissel and Peto's dredging machine alone, besides what has been removed by another contractor. At Gloucester it has been necessary to remove the entire foundation of one of the piers of the old bridge, and in the course of this operation, some curious relics of ancient coins have been discovered.



**French Coal Mines.**—The Report of the Engineer appointed by the administration of roads and bridges in France, states, that the country is in the third rank as regards the production of coal; England and Belgium being the first and second. The production of England annually is 23,500,000; of Belgium, 4,500,000; of France, 3,783,000; and of the Zollverein, 3,000,000 tons. France contains 425 coal mines, on a surface of about 450,000 hectares; of these 173 are not worked. These mines employed in 1844 nearly 30,000 laborers. The amount of coal raised being insufficient for the consumption of the kingdom, about 1,500,000 tons are imported from England and Belgium. The number of steam engines of all sorts employed in France in 1844 was 4,310, of 65,950 horse power, about one-twelfth of the force employed in England. The quantity of iron consumed in the same year, was, in France, 480,000 tons; four times that used in Belgium, which was 120,000 tons; but only one-third of the English consumption, which was 1,200,000 tons; the amount consumed by the Zollverein in 1844 being 800,000 tons.

**Railways and Fresh Herrings.**—Herrings caught at Brighton in the morning, are sold in the Midland counties in the afternoon. This arises from the facilities of transit by the London and Brighton and London and North Western Railway, "and such has been the effect in the reduction of prices," says a Birmingham correspondent, "that the finest quality can now be had at the rate of from 20 to 25 for a shilling, being a reduction of nearly 200 per cent."

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—a lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

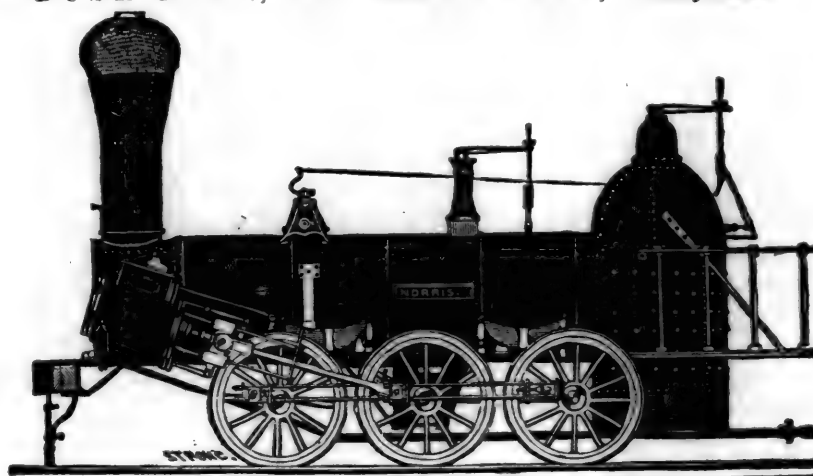
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by DAVIS, BROOKS & CO.,

Jan. 2. [14] 68 Broad St., New York.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY, President of the Newcastle Manuf. Co.

### RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand

A. & G. RALSTON  
Mar. 20th 4 South Front St., Philadelphia.

### KEARNEY FRIE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper, }  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

**PATENT INDESTRUCTIBLE WATER PIPES.** The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



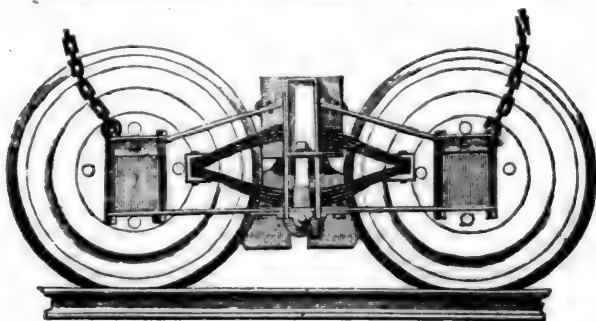
Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**LOCOMOTIVE AND CAR AXLES.**

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**

Willow Street Wharf, Philadelphia, Pa.

41f

**NOTICE TO RAILROAD CONTRACTORS.**

Proposals will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.

For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

**THOMAS WEST, President**

Boston and Maine Railroad.

January 22, 1847.

34

**NOTICE TO RAILROAD CONTRACTORS.**

Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.

**J. W. BROOKS, Supt. & Eng.**

Detroit, January 5, 1847.

53

**A. & G. RALSTON & CO., NO. 4**

South Front St., Philadelphia, Pa. Have now on hand, for sale, Railroad Iron, viz:

180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.

25 " 2 1/2 x 1/4 " Flange Iron Rails.

75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

11

**RAILROAD IRON.—THE NEW JERSEY**

Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

**FULLER & BROWN, Agent,**

No. 139 Greenwich, corner of Cedar street.

September 18, 1846.

10:39

**NICOLL'S PATENT SAFETY SWITCH**

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

**G. A. NICOLLS,**

Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S**

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO,**

45 North Water St., Philadelphia,

or by their Agent, **ROBT. NICHOLS,**

79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR**

the sale of

Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

**WILLIAM ROE, Supt of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] **G. A. NICOLL,**

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] **T. L. SMITH,**

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, } [Signed.] **JOHN LEACH,**

Jamaica November 12, 1845. } 1y19

Supt Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitation in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GORE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 134½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat, RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 190 Meeting street, Charleston, S. C.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

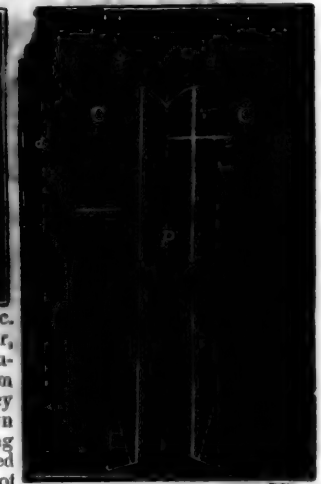
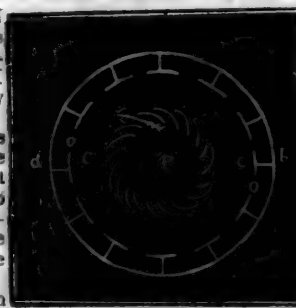
**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 445 Paterson, N. J., or 60 Wall street, N. York.



**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

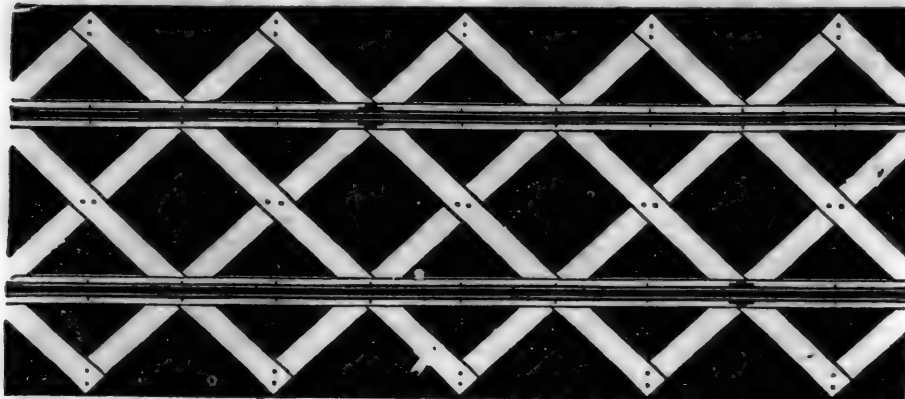
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**DAVENPORT & BRIDGES CONTINUE** to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of the trellis for the purpose of giving an additional, Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet, the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
1,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 21
13,000 Spikes = 2,250 lbs. at 4½ cts =		101 25
Workmanship free of patent charge		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33tf

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LEBS. OZ.	INCH.	LEBS. OZ.		LEBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y21

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
ly10 near Third,  
below Walnut,  
Philadelphia.

LAP—WELDED  
WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

28 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Maryland.

## RAILROAD IRON.—THE "MONTGOMERY"

Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT &amp; CO.,

ly48

77 Pine St., New York.

## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

46tf

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM &amp; GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH &amp; BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER &amp; Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN &amp; Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK &amp; TOWNE, do.

HINCKLEY &amp; DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 8]

SATURDAY, FEBRUARY 20, 1847.

[WHOLE No. 557, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.  
31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD and STAGES** Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows: Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½ and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Super't.

## THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00

" " Sandusky to Buffalo, Cabin..... 6 00

" " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles (this road is run over in 2h. 50m.,) most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

Sandusky, Ohio.

B. HIGGINS, Sup't, etc.

M. & S. C. R. R. Co.

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't, March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 u

## NORWICH AND WORCESTER RAIL-

Road. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stambot from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y J. W. STOWELL, Sup't.

# TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston. Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

## TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

## TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

# BALTIMORE AND OHIO RAILROAD.

**MAIN STEM:** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

## WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 1y31

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10

New York.

# NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance..... 65 "

## TIME.

From Buffalo to Sandusky..... 24 hours. Leave Sandusky 5 a.m. to Columbus..... 14 " From Columbus to Cincinnati..... 13 " Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

## FARE.

From Buffalo to Sandusky, Cabin.....\$6 00 " " " Steerage..... 3 00 " Sandusky to Columbus..... 4 50 " " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

# NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

## RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 20, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

## SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

# BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m. Arrives at..... 9 a.m. and 6 1/2 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at..... 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at..... 8 a.m. and 2 p.m.

## FARE.

Fare to York.....\$1 50 " Wrightsville..... 2 00 " Columbia..... 2 12 1/2

Way points in proportion.

## PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9 Or via Lancaster by railroad..... 10 Through tickets to Harrisburg or Gettysburg... 3 In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at..... 5 1/2 p.m. Returning, leaves Owings' Mills at..... 7 a.m.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

# LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

# SOUTH CAROLINA RAILROAD.—A

Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily..... \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

# CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

# MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

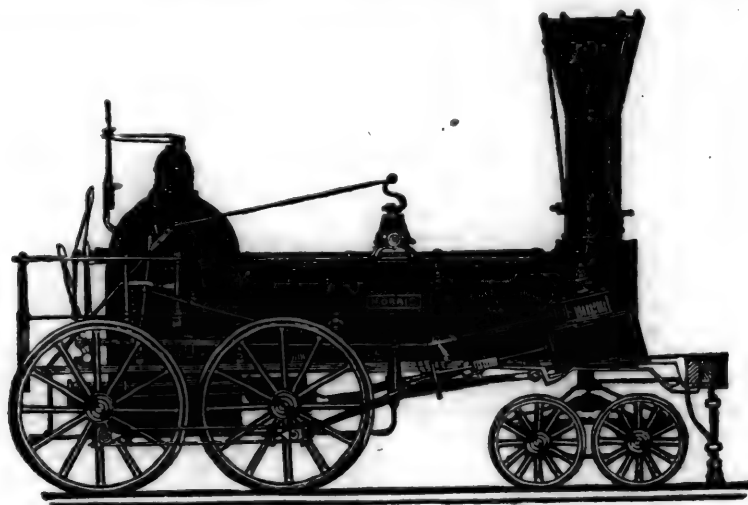
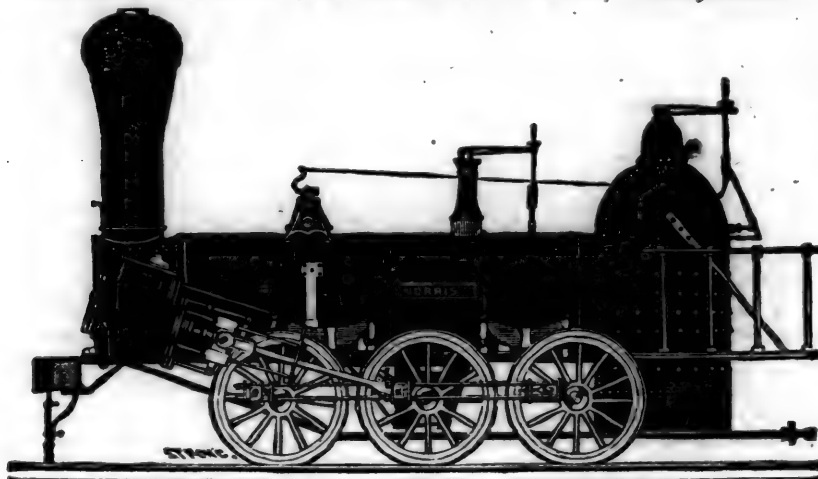
2v19 1y





# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON 4 South Front St., Philadelphia. Mar. 20th

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 30 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 30 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.  
Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.

This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.



**Pennsylvania Coal Trade.**

In our last, we published an excellent article from the "*Philadelphia Commercial List*,"—one of the best papers we know of—and, below, we give another from the same journal, in reference to the Coal Trade of Pennsylvania, etc., which will be found highly interesting.

**Pennsylvania the Pioneer in Internal Improvements.**—**COAL TRADE.**—The State of Pennsylvania has claims which seem to be imperfectly understood by her sisters of the Union. The reason probably is, that those claims have failed of being properly asserted. In the history of valuable discoveries, and of pioneer operations in the great works which are to give character and wealth to our nation, Pennsylvania, and the City of Philadelphia, in particular, is entitled to no secondary place. While all due honor is cheerfully accorded to the city of Boston, for the liberality and successful enterprise of her citizens, justice to Philadelphia demands that there should be, in the comparison, a more distinct remembrance of what she has done, than appears generally to prevail.

The great fact that in all works of Internal Improvement, Pennsylvania has been the pioneer, is one which eminently deserves the consideration of the country. If a wider range of details were taken, it would be interesting to dwell on such facts as these, viz: that the Quadrant was here invented by Godfrey—that here Franklin taught men how to control the lightnings of heaven—that on the Delaware, at Philadelphia, John Fitch first proved the power of his rude steamboat, and that it was Fulton, a native of Pennsylvania, who immortalized his name, by maturing that wonderful invention—that the first Locomotive was set in motion near the corner of Ninth and Market, by its inventor, Oliver Evans, who, with the foresight so often noticed as a characteristic of great discoverers, declared, that the time would come, when one would "breakfast in New York, dine at Philadelphia, and sup at Baltimore." Here also was situated the first Bank established in the country, and the first Insurance Office. Here was organized the first Sabbath School, an honor, surely, to be appreciated throughout the length and breadth of our Union. Philadelphia first showed what might be done in supplying cities with water, by her astonishing Fairmount Water Works. In her Eastern Penitentiary, she furnished a model for Institutions of that class, which has been extensively approved and imitated, both in this country, and in Europe. The first public Hospital in the United States, was the Pennsylvania Hospital. The first Institution for the Blind, was that established in this city. Here, too, before the Revolution, the great discovery which has given us the Magnetic Telegraph, led Franklin to give signals by electricity across the Schuylkill.

In such a review, it might be added, that the merchants of Philadelphia, at an early period, had the patriotism and the liberality, to build a frigate, and present it to the United States Government, the only instance of the kind on record; and the State of Pennsylvania erected a house in Philadelphia, and of-

ferred it as a present to Washington. Here, also, a stand was taken against the exactions of Great Britain, in advance of Boston herself. The first opposition to the landing of Tea was made at a public meeting held in Philadelphia, some weeks before the celebrated tea-party executed its work at Boston.

Last, though not least, should be mentioned the fact known throughout the civilized world, that from Philadelphia came forth the Declaration of Independence.

But the part which Pennsylvania has taken in the great works of internal improvement, evidently needs to be better understood. A thorough investigation of this subject would cause surprise in many quarters, and place the character of our City and Commonwealth in a most honorable position.

It is to be remembered that the surface of this State presents an obstacle in internal improvements, greater than is found in any other. Vast ranges of mountains are to be scaled, because there are no gorges through which roads can pass. Rapid and turbulent streams, which are frequently swollen by the rains and snows of the mountains, often carry destruction in their course. Yet the mountains have been scaled by our turnpike roads, and substantial and costly bridges have been thrown over the thousand streams. In the extent and cost of her turnpikes, Pennsylvania has long been in advance of all her sister States. The turnpike from Philadelphia to Lancaster, was the first undertaken in the Union, and was completed in 1794, at a cost of \$465,000. Subsequently, the whole surface of the State was traversed by these roads. But the day of turnpikes has passed away; and the famous Conestoga wagons, with their noble six-horse teams, whose bells sounded along the mountain defiles, and warned the traveller of their approach, are to be reckoned among the wonders of Pennsylvania, as it was.

The Bridges of this State, have been accounted one of its remarkable features. The Schuylkill "Fairmount Bridge," erected in 1798, at an expense of \$300,000, was the first great work of the kind contemplated in this country. The first Fairmount bridge, with its span of 348½ feet, outrivalling the famous bridge of Shauflhausen, and the Wire Bridge erected in 1817 at the Falls of the Schuylkill, which served to suggest the idea to European builders, were an honor to Philadelphia. The bridges in the interior, by their number, and their substantial, and even bold character, have done honor to the State.

For the introduction of Canals, as well as Turnpikes, to the public attention, the country is indebted to Pennsylvania. Even William Penn seems to have meditated on the project of connecting the Susquehanna with the Schuylkill; and in 1762, David Rittenhouse and Dr. William Smith surveyed a canal route for the purpose. At that early day, these gentlemen had in view the connecting of the Lakes and the Ohio Canal with the Delaware, by a route of nearly 600 miles! The survey, under the authority of the Legislature of Pennsylvania, was ac-

complished in 1769. In 1791, a company was incorporated for connecting the Susquehanna and the Schuylkill; and in 1792, another was incorporated for connecting the Schuylkill with the Delaware, by way of Norristown. At the head of the latter was Robert Morris, the celebrated financier. These two companies undertook the work, and proceeded far with it, when, having expended \$140,000, they were embarrassed, and suspended operations, a number of the leading individuals having become bankrupt in this Herculean effort. These beginnings, however, resulted at length in the completion of the Union Canal. The first Tunnels excavated in the Union, were in Pennsylvania. The first survey of the Chesapeake and Delaware Canal, was made in 1769, by order of the American Philosophical Society; and as early as 1804, \$100,000 were expended in the execution of the work.

When the period of Railroads arrived, Pennsylvania was again the pioneer. The Railroad at Mauch Chunk, constructed with Philadelphia capital, was the first in the Union; or, at least, was anticipated only by a short tram-road at Quincy, Mass. From that period to the present, Philadelphia has been second to no city in the Union, in expenditures for constructing these wonderful annihilators of time and space.

THE COAL TRADE OF PENNSYLVANIA is attracting, more and more, the attention of the country. No thinking person can contemplate its progress, without being deeply impressed with the importance, to our Union, of the State in which such vast resources of fuel are found. Were Pennsylvania annihilated, with all her mountains of Coal and Iron, how melancholy would be the condition of her surviving confederates, in regard to those two grand requisites of civilized life.

If the importance of the Coal Trade is inconceivably great, its progress has been astonishing. Anthracite Coal was first used as fuel (on tide water) in 1820, and the total supply then sent to market, was 365 tons! a quantity much smaller than that now annually consumed by hundreds of single establishments. We now find a single Iron Manufacturing Company, in our State, consuming 60,000 tons of Anthracite, and 100,000 bushels of Bituminous Coals, annually.

From being regarded as a doubtful article of combustion at all, anthracite coal has come to be largely used for domestic purposes, for the production of steam in manufacturing establishments, for propelling steamboats and railroad locomotives, and more recently for the manufacture of iron, for which purpose it is employed on an immense scale. In 1840, there were no anthracite furnaces in full and successful operation. There are now 40 furnaces in blast, many of them of the largest class. Within the last three years, 18 rolling mills have been erected, which consume hundreds of thousands of tons of coal annually. This branch of business, so important in a National view, is destined to increase rapidly, as the demand for railroad iron increases in almost every section of our coun-

try. It is only by collecting details and uniting them, that the extent and importance of the coal trade is made apparent. It has already more than trebled the coasting trade of Philadelphia, and pays, annually, a freight on the shipments coastwise from this port, of more than a million of dollars. If this trade is of such importance in its comparative infancy, what will it be in its full growth?

About the year 1837, a report was made to the government by Maj. Bache, of the Topographical Engineers, on the subject of an artificial harbor or breakwater, at Cape May, in which he states, that the insurable interest created by the Coal Trade passing around Cape May alone, already amounts to more than twenty two millions of dollars per annum, estimating merely the vessels in ballast coming after it, and the value of the vessel and cargo carrying it to the various ports at which it is wanted. Many of these vessels bring us supplies from the ports they come from, at merely a nominal freight, instead of ballast—plaster, fish, lumber, salt, and other articles required for consumption in the interior, which add materially to the resources of the canals and railroads.

In England, coal appears to have been first used as fuel, about the close of the 12th century. In 1239, Henry III. granted a charter to the burgesses, of Newcastle, to dig for coal; which is the first legal mention of the article on record. As early as 1140, we find among the Leges Burgorum, an enactment giving special privileges to the inbringers of fuel, which is described as being wood, turves and peats. The English coal trade, which now amounts to forty millions of tons annually, may indicate to us something of what we have reason to predict in our future career.

Perhaps few persons have distinctly considered the aggregate expenditure to the improvements designed to facilitate the transportation of coal from our vast coal fields. Let us look at some definite statistical account of these operations:

*Names and Cost of the Canals and Railroads leading to the Coal Mines:*

Lehigh Coal Region.	Canals. Length.	Railroads. Length.	Cost.
<i>The Lehigh Navigation</i> —Extends from Easton to Whitehaven, 71 miles, and thence to Stoddartsville, 16 miles, there is an improved navigation.....	87		\$1,555,000
<i>Whitehaven and Wilkesbarre Railroad</i> —From Whitehaven to Wilkesbarre, with three inclined planes and one tunnel.....	30		1,350,000
<i>Mauch Chunk Railroad</i> —From Summit and Room Run mines to Mauch Chunk, and back tracks.....	36		600,000
<i>Beaver Meadow Railroad</i> —From the Beaver Meadows to landing on Lehigh canal.....	26		360,000
<i>Hazleton Railroad</i> —To Lehigh Canal.....	10		120,000
<i>Buck Mountain railroad</i> —To Lehigh Canal.....	4		40,000
<i>Summit Railroad</i> .....	2		20,000
Total Lehigh Improvements,	87	98	\$7,045,000

#### SCHUYLKILL REGION.

<i>The Schuylkill Navigation</i> —commences at Philadelphia and terminates at Port Carbon, (including cost for enlarging to this time).....	108		\$5,675,000
<i>The Reading Railroad</i> —Extends from Richmond to Mount Carbon, with a branch from the Falls of Schuylkill to the Columbia Railroad, at Peters Island, including cost of cars, locomotives, etc.....	93		11,000,000
<i>Little Schuylkill Railroad</i> —Between Port Clinton and Tamaqua, cost \$220,000, and new rails now laying, \$220,000.....	20		500,000
<i>Mine Hill and Schuylkill Haven Railroad</i> —Cost \$430,000; new rails and 71 miles extension to Swatara, \$120,000.....	65		550,000
<i>Danville and Pottsville Railroad</i> —Unfinished and only part in use.....	294		680,000
<i>Mount Carbon Railroad</i> .....	7		155,000
<i>Mount Carbon and Port Carbon Railroad</i> .....	21		120,000
<i>Schuylkill Valley Railroad</i> .....	14		300,000
<i>Mill Creek Railroad</i> .....	6		120,000
Railroads constructed by individuals, aggregate.....	70		180,000
Railroads under ground in the mines.....	60		75,000
Total, Schuylkill.....	108	357	\$19,365,000

#### OTHER PLACES.

<i>Lykens' Valley Railroad</i> —To Susquehanna Canal.....	16		\$200,000
<i>Wisconsin Canal</i> —To Millersburg on Susquehanna.....	12		70,000
<i>Swatara railroad</i> —To Union Canal.....	4		20,000
<i>Lorberry Railroad</i> .....	4		20,000
Total, other places.....	12	24	\$310,000

#### RECAPITULATION.

Lehigh Improvements.....	87	98	\$7,045,000
Schuylkill.....	108	214	19,355,000
Other places.....	12	24	310,000
Total.....	207	479	\$36,610,000
To these must be added the Delaware and Hudson Canal, 108 miles long, and Railroad, 24 miles, cost.....			
			\$3,250,000
Morris Canal, 108 miles long, constructed to carry coal to New York, cost.....			
			4,000,000
Total, as above.....			26,610,000
Grand Total.....			\$34,060,000
Total length of Canals, 417 miles.			
Total Railroads.....503 "			

The Coal Trade gives employment to a very great number of persons. Indeed, nearly all the cost of the article is the result of labor. In its locality, it is worth only from 25 to 50 cents per ton; averaging 35 cents per ton. But in all the operations connected with mining and the transportation, a vast amount of labor is employed. We must take into account, not only the miners, and the boatmen and brakemen on the canals and railroads, and the hands on board the transporting vessels, and the cartmen at the places of delivery, but also the thousands employed at the same time, in making the necessary railroads and canals, the locomotives and stationary engines, the boats, etc., etc.

The sums thus invested in providing avenues for the coal trade, may be computed;

but the enhanced value of lands, and the property which appears in smiling villages where once roamed the panther and the bear, baffle all attempts at calculation.

These exhibitions of the extent of the coal trade, and of its importance to the Union, lead us to ask whether this interest has not a claim upon the government for protection and encouragement. If not, how could such a claim be conceived of as possible? What operations can be more intimately connected with the prime elements of National growth and power? What political wisdom can discern the propriety of withholding the protecting power of the government here, unless it be that which denies, altogether, the justice and policy of any restrictions on the disheartening competition of other nations, which is fited to keep back our own enterprises for centuries?

Now, by way of contrast, let us take the total amount of capital invested in all the manufacturing establishments at Lowell, and see how it compares with the above expenditures. During a visit to that remarkable city, last summer, we obtained a copy of the "Statistics of Lowell Manufactures for 1846." From it we learn the following particulars. The amount of capital invested in all the factories, including buildings, machinery, houses for the operatives, etc., is as follows:

Merrimack Manufacturing Co., capital, \$2,000,000	
Hamilton " " " " 1,200,000	
Appleton " " " " 600,000	
Lowell " " " " 600,000	
Middlesex " " " " 750,000	
Suffolk " " " " 600,000	
Lawrence " " " " 1,500,000	
Tremont Mills " " " " 600,000	
Boott Cotton Mills " " " " 1,200,000	
Massachusetts Cotton Mills, " " " " 1,200,000	
Lowell Machine Shop " " " " 300,000	

Total capital.....\$10,550,000

Thus, it will be seen, that the whole amount invested in all the manufactories at Lowell, is less than one third the sum actually expended in constructing avenues for bringing Pennsylvania coal to market.

The number of vessels of all descriptions cleared at Philadelphia and Bristol, laden with Lehigh coal, during the same period, amounted to 1246, carrying 161,282 tons of coal.

Total number of vessels cleared from the port of Philadelphia, in 1846, laden with coal, as far as ascertained, eight thousand three hundred and seven.

Here, then, next to the whale trade, is the greatest nursery for seamen.

The quantity of coal which passed through the Delaware and Raritan Canal, to New York, has been as follows:

1842.....	171,754 tons.
1843.....	198,362 "
1844.....	267,496 "
1845.....	372,072 "
1846.....	339,924 "

On what grounds can our government reasonably hesitate to put forth its best energies for the sustaining of the great coal and iron interest of Pennsylvania—a Pennsylvania interest indeed, geographically, but a National interest in all its great ultimate bear-



ings, if such a thing as a National interest can be known or conceived of.

We feel that such statements as those which we present to our readers this week, must powerfully arrest the attention of thinking men. In thus exhibiting, in accurate statistical manner, the resources and energies of Pennsylvania, we cannot be exposed to the imputation of a vain-glorious spirit; and the information communicated must be new, in a great measure, to most of our readers, and impressive to all. We propose, in a future number, to exhibit, in a full and accurate manner, the iron interest of Pennsylvania.

#### Water for Saratoga.

The facts embodied in the annexed account from the Saratoga Republican, of the recently constructed Water Works of that place, will interest the people of many villages which are not yet, but ought to be, similarly provided for. The Republican says:

The recent experiment of supplying this village with water, has pretty conclusively established the fact that an abundant supply of water may be obtained, and that the indestructible water pipes manufactured by J. Ball & Co., at 112 Fulton street, New York, are decidedly superior to any other yet invented. Unlike cast iron and lead, this pipe imparts neither color, oxide or taste, being formed of strongly rivetted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same; thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead, and persons or associations about to supply themselves with water, will not only find this kind of pipe preferable in every respect, to any other in use, but the patentee, Mr. Ball, who owns the entire right in this State, is an honorable, intelligent and faithful man to deal with. He has nearly finished a contract for laying about \$14,000 worth of pipe for our village, and notwithstanding the doubts previously entertained of its goodness and durability, the undertaking is now regarded with favor by more than nineteen twentieths of our inhabitants. Mr. Ball labored under many disadvantages, in performing his contract with this village. He had three commissioners, five trustees and forty others, to consult in the matter. The trench was neither dug nor covered according to his instructions—it was late in the season before he began the work—he extended it nearly half a mile in the village, when he had agreed to come only to Broadway this Fall—his workmen were mostly strangers to him, and unexperienced in the business, and he was often disappointed in not receiving his materials from New York, in consequence of unreasonable delays upon the river or railroad. Yet, notwithstanding all these embarrassments, he progressed much farther with the work than he had agreed or was expected to by those who employed him. What has been done, appears to be in capital order, although it cannot be expected that the work will be perfect until it is carefully

examined and repaired in the Spring. Even the Croton Water Works, for the city of New York, which are laid in cast iron pipes, require continual guarding and repair.

The long desired object of obtaining a good supply of water is about accomplished. The pipes should be extended and hydrants established in all parts of the village, and if our citizens consult their true interests, they will see that sufficient means are promptly provided for carrying the water through all the principal streets with the opening of Spring. The \$10,000 loan is about expended, an account of which, with the vouchers, will soon be exhibited by the commissioners.

The trustees have pledged \$280 per annum of the water rents, being the annual interest on \$4000 more and making the whole investment \$14,000. With this, the pipe is to be extended some — feet next spring; and when this is done, the work must stop unless additional funds are provided. 'Tis true, the trustees might pledge \$20 per annum more of the water rents, and thus perhaps, expend \$285 71 more than the \$14,000, but this would be the limit to which they can go, the residue of the water rents over and above the \$300, being pledged by the law toward extinguishing the principal of the \$10,000 loan. The trustees have become obliged to Mr. Ball & Co., to apply to the legislature for a law authorizing an additional loan of \$4000, and thus relieve the \$280 water rents from the pledge for laying the pipes. What objection can there be to increasing the loan from 14,000 to \$18,000? This would extend the water to every desirable part of the village, and locate a hydrant on the corner of all the principal streets—an objection of the utmost importance to every tax payer in town. One destructive fire, such as we have frequently had, would destroy more property than the cost of the whole water works; and by locating hydrants at suitable points, fires would be less frequent and less disastrous—rates of insurance would no doubt be reduced—real estate would be increased in value, and the inducements to make investments at Saratoga, would be proportionably multiplied. The want of a good supply of water has been a serious obstacle to the prosperity of our village. Our citizens have felt it—strangers and visitors have observed it; and now that it is ascertained that first rate water for all purposes, can be obtained, we should be inexcusable in delaying to profit by the enterprise. Nor should we stop with a partial or unequal distribution of these benefits to the more central parts of the village. All are required to pay their full proportion of the tax, and all should be allowed to participate in the privileges to be gained from the undertaking. Those whose property is located in the immediate vicinity of the hydrants, who enjoy the privileges of the water, should show their liberality by uniting with their less favored neighbors in an application to the legislature to extend the works to all parts of the village. Many of them, no doubt, will do so, and we have yet to learn that any man will be so selfish or unreasonable as to oppose a project designed to be a lasting benefit to our citizens at large.

We find in the Railway Chronicle for December 26, the following interesting trial in the Rolls on Steamboat Engagements:

The decision of Lord Langdale in the Rolls Court, on an application to dissolve the injunction granted at the instance of a proprietor, against the Eastern Counties company, to restrain the latter from completing the agreement entered into with the Harwich steam packet company, is of considerable interest. The observations of his lordship on the merits of the case are exceedingly clear and decisive. They expressly declare that the employment or engagement of the funds of a railway corporation for purposes not contemplated in the Act by which it exists—whatever may be the advantage expected to accrue from this use of them—is contrary to law, although it may have been established in practice. That neither the director nor a majority of the shareholders, can legally impose on any railway proprietor liabilities foreign to the declared object of the partnership, as defined by the company's Act: that the objects of a railway company are confined to the making, maintenance and working of the traffic of the railway itself except where power to transact other business or enter into other agreements is expressly given: that, allowing reasonable latitude in the construction of the terms by which the general purposes of the railway (including the promotion of its traffic) may be interpreted—a latitude sufficient to meet the objection that a strict reading of the law would forbid a variety of minor arrangements conducive or necessary to the business—it could not, by the largest interpretation, include the support of another company, engaged in a speculation of a different kind, and liable to serious risks—nor authorize the adoption or guarantee of the liabilities of any such foreign enterprise. On these grounds, the Judge refused to dissolve the injunction.

**Sheerness.**—The whole of the guns for the old fortifications have now arrived from Woolwich. They are 63 in number, and are of the following descriptions: 4 eight inch guns, 98 cwt. each, 11 feet long; 29 eight inch guns, 66 cwt. each, 9 feet long; 26 six-and-a-half guns, 56 cwt. each, 9 feet 6 inches long, and 4 six and a-half inch guns, 32 cwt. each, 6 feet 6 inches long. The workmen now await the arrival of the carriages and platforms from Woolwich: the masonry on which they are to rest is all ready to be laid down. The guns are to be placed as follows: 20 on the Halfmoon Battery at the Point, 13 on the Admiral's platform overlooking the said battery, and the remaining 30 along the works protecting the Barracks. The new works progress rapidly; the battery forming opposite the dockyard yard is now carried to the height of the platform; its further progress has, however, been deferred till the formation of the deep ditch by which it is to be protected, and on which all the workmen are now concentrated. Wooden profiles are now up for another battery, with which this is to be connected by a masonry wall, while to the eastward it will be continued into the bastions extending from the Thames to the Medway.

### A Brief History of the Philadelphia and Reading Railroad.

We find in a late number of the "Philadelphia Commercial List," (published by Col. C. G. Childs, and, by the way, a most excellent journal of its character,) the following succinct and comprehensive description of the origin and progress of the Philadelphia and Reading railroad. This road has now become one of the most important public works in this country, and we have no doubt the facts as set down in the article which follows, may be relied on, as generally correct. Under the management of JOHN TUCKER, Esq., its able president, its prospects are flattering, and we are happy to know, that its business is at this time so valuable, and its prosperity advancing so rapidly as it is. We learn that about one-third the stock of this road is owned in Boston—one-third in Europe—and the remainder by citizens in this city and vicinity. The history of the road, as below, will be read with deep interest, by all who are concerned in this kind of enterprise.

"This railroad was projected in 1833, a charter obtained in 1834, surveys made the same year, and 41 miles put under contract and construction in 1835.

It was originally designed for its present purpose, an outlet, or avenue to market, for the Schuylkill coal region; but its first charter extended only to that town which has the honor of giving it a name, the borough of Reading, 59 miles from its terminus on the Delaware river, near Philadelphia; as the right of constructing a railroad between Reading and Port Clinton, 20 miles, had already been granted to another corporation, the "Little Schuylkill Railroad Company," terminating at the latter point. From insufficient means, this company were unable to extend their road, and yielded their right and charter to the Reading railroad company, who, with a further extension of their charter, beyond Port Clinton to Pottsville, went into an active prosecution of the whole work from Pottsville to the Delaware, 93 miles, under one charter, now known as the Reading Railroad.

Every Pennsylvanian is familiar with the great embarrassments to the business of the country, checking commercial enterprise, disastrous to every branch of industry, and fatal to public and private credit, during the period from 1833 to 1842. Notwithstanding all these difficulties, the friends of this road pushed steadily on with its construction, taxing their energies, their means, and their credit, to the utmost, to insure its speedy completion; and, on the 1st day of 1842, the 1st locomotive and train passed over the whole line, between Pottsville and Philadelphia.

From that date to the present, its business, its revenue, and its credit, have increased, in a degree scarcely paralleled by any similar improvement, until its tonnage and receipts are measured, as at present, by millions.

Two continuous tracks of railway extend the whole distance of 93 miles, from Mount Carbon, near Pottsville, to the Delaware river, three miles above the heart of the city of Philadelphia; with a branch also laid with a double track  $1\frac{1}{2}$  miles long, connecting, by the State road, with the principal business street of the same city, for the passengers, merchandise, and city coal business. The rail used is of the H pattern, with both top and edges alike; and weighs 41 $\frac{1}{2}$ , 52 $\frac{1}{2}$  and 60 lbs. to the yard; the lightest having been first, and the heaviest last used. A few tons of other rails, purchased before a further supply of the pattern adopted for the road could be obtained in England, and varying from 51 to 57 lbs. per yard, are also in use.

The track is laid in the most simple manner, the lower web, or base of the rail, being notched into 7 by 8 white oak cross-sills, and these laid on broken stone, 14 inches deep, and well rammed. This method is found admirably calculated for the enormous tonnage of the road, being rapidly and economically repaired and replaced, securing a thorough drainage and preserving its line and level true, at all seasons of the year.

The grades of this road are the chief elements of its success in revolutionizing public opinion on the subject of the carriage of heavy burdens by railway. From the most important branch coal-feeder of the

road, at Schuylkill Haven, to the Falls of Schuylkill, a distance of 84 miles, the grades all descend in the direction of the loaded trains, or are level; with no more abrupt descent, than 19 feet per mile. At the Falls, an assistant locomotive engine, of great power, pushes the train, without the latter stopping, or any delay, up a grade of 42 $\frac{1}{2}$  feet per mile for four-tenths of a mile, leaving it on a descending grade, within four miles of Richmond, whither it is readily conveyed by the same engine which started from Pottsville, never leaving her train.

The bridges on the line, are of great variety in plan and material of construction, stone, iron and wood. The most perfect and beautiful structure on the road, if not in the State, is a stone bridge over the Schuylkill near Phoenixville, built of cut stone throughout, with four circular arches, of 73 feet span, and 16 $\frac{1}{2}$  feet rise each, at a cost, with ice-breakers, of \$47,000. There are 75 other stone bridges and culverts, varying from 6 to 50 feet span; all of circular arcs, spanning water-courses, branches of the Schuylkill and roads. There are seven bridges from 25 to 39 feet span each, built of iron, trussed after the "Howe" plan, with wrought iron top, and bottom chords, wrought iron vertical ties, and cast iron diagonal braces. These bridges are stiff and light, and present a very neat and handsome appearance. As, however, the floorings are of wood, and therefore liable to decay and accident, they have only been used where the width and depth rendered stone bridges impracticable, the latter being always used in replacing wooden structures, wherever it was practicable. There are 23 long wooden bridges, varying from 61 to 160 feet span, built on various principles, chiefly of lattice work, assisted by heavy arch pieces. Of this latter description, the bridge over the Schuylkill at the falls, is a fine specimen. It is 636 feet long, consisting of 4 spans of 134, two of 152, and one of 160 feet respectively, with its deck 46 feet above the river. There is one bridge built on "Burr's" plan, with double arch pieces of 149 feet span; and one on "Howe's" plan, 156 feet span, also assisted by arch pieces. Besides the above, there are 28 wooden bridges of short spans, from 14 to 39 feet, built of King post, Queen post, "Howe's truss" and joists.

There are four tunnels on the road. The longest of these is near Phoenixville, 1,934 feet long, cut through solid rock, worked from five shafts, and two end breasts; deepest shaft 140 feet; size of tunnel 19 feet wide, by 17 $\frac{1}{2}$  high; total cost \$153,000. Another tunnel at Port Clinton is 1,600 feet long, worked from the two ends only; material, loose and solid rock mixed; 1,300 feet are arched; depth below the surface of ground, 119 feet; total cost, \$139,000.—The Manayunk tunnel is 960 feet long, though very hard solid rock, worked from two ends; depth below surface, 95 feet; total cost, \$91,000. Another tunnel, under the grade of the Norristown railroad, and through an embankment of the latter, is 173 feet long, formed of a brick arch, with cut stone facades.

The depots on this road, are all substantially built, but with a view to use, rather than ornament. At Schuylkill Haven, three miles from Pottsville, is erected a spacious engine house, round, with a semi-circular dome roof 120 feet diameter, and 96 feet high; with a 40 feet turning platform in the centre, and tracks radiating therefrom, capable of housing 16 second class engines and tenders. At Reading, are located the most complete, extensive and efficient workshops, and railroad buildings of every description, to be found in the country. The company's property covers here, besides the railroad tracks, 36 acres, the greater part of which is already in use, for the various operations required to keep this vast machine in life and motion. The main machine shop is 159 by 70 feet, filled with the most valuable tools and machinery, all made, with the exception of three or four lathes, in the company's workshops, by their own mechanics. Other machine shops, one 87 by 40 feet, are used for fitting iron and brass exclusively.

The iron foundry is 164 by 33 feet, with cupolas. The largest blacksmith's shop is 131 by 31 feet, 57 smith's fires being daily in use in the works, all blown by fans, driven by steam. The main carpenter's shop is 140 by 46 feet, with a pattern shop in the second story.

The iron coal cars, tenders and smoke pipes, are made and repaired in a shop 123 by 83 feet.

A merchandize depot, just completed, is 194 by

84 feet, to accommodate that rapidly increasing branch of business. About a mile below the Reading depot, where the railroad is nearest the river, most efficient water works have been lately constructed, consisting of a reservoir, on the Neversink hill side, 51 feet above the rails, holding 700,000 gallons of water, supplied with a force pump worked by a small steam engine. Attached to this station, are also two separate tracks with coal shutes beneath, 300 and 450 feet long each, for the use of the town; two wood and water stations; a small portable steam engine for sawing wood, a refreshment house for crews of engines stopping to wood or water; a brass foundry, passenger car house, passenger rooms, offices, etc. All the machinery of the main shops and foundry, is driven by a very handsomely finished stationary engine, with double cranks, of 35 horse power, built entirely on the works.

At Pottstown station, 18 miles below Reading, extensive and efficient shops have also been erected, chiefly for work connected with the bridges and track of the road, and work of various descriptions. The principal shops here, are 151 by 81, 101 by 41, and 81 by 44 feet. The first shop is covered with a neat and light roof, built of an arched "Howe truss," forming a segment of a circle, 78 $\frac{1}{2}$  feet span, by 16 feet rise.

At Richmond, the lower terminus of the road, at tidewater, on the river Delaware, are constructed the most extensive and commodious wharves, in all probability, in the world, for the reception and shipping, not only of the present, but of the future vast coal tonnage of the railway; 49 acres are occupied with the company's wharves and works, extending along 2,273 feet of river front, and accessible to vessels of 600 or 700 tons. The shipping arrangements consist of 17 wharves, or piers, extending from 342 to 1,132 feet into the river, all built in the most substantial manner, and furnished with schutes at convenient distances, by which the coal flows into the vessel lying alongside directly from the opened bottom of the coal car in which it left the mouth of the mine. As some coal is piled or stacked in winter, or at times when its shipment is not required, the elevation of the tracks by trestlings, above the solid surface or flooring of the piers, affording sufficient room for stowing 195,000 tons of coal. Capacious docks extend in shore, between each pair of wharves, thus making the whole river front available for shipping purposes; 97 vessels can be loaded at the same moment; and few places present busier, or more interesting scenes, than the wharves of the Reading railroad at Richmond. A brig of 155 tons has been loaded with that number of tons of coal, in 130 minutes, at these wharves.

A very convenient and neat engine house, has lately been erected at this station; it is of a semi-circular shape, with a 40 feet turning platform in the centre, outside; from which tracks radiate into the house, giving a capacity for 50 engines and their tenders of the largest class, the building 302 ft. long on the centre line, by 69 feet wide. It is built in the simple Gothic style, the front supported by cast iron clustered pillars, from the tops of which spring pointed arches, and the whole capped with turretted capping. Immediately adjoining, are built spacious machine and workshops, for repairs of engines and cars, all under one roof, 991 by 63 feet. A visit to this chief outlet of the Pennsylvania coal trade, will give the best idea of its magnitude, and of the various branches of industry connected with it.

The business of this road requires a large amount of running machinery. The latter consists of 71 locomotive engines and tenders, including five in constant use on the lateral railroads in the coal region; 3,020 iron, and 1,539 wooden coal cars; 492 cars for merchandize, and use of road, and 17 passenger cars.

The engines vary from 8 to 29 $\frac{1}{2}$  tons weight; two very powerful engines, of 27 tons weight each are used exclusively on the Falls grade, before mentioned. The iron cars weigh 24 tons, empty, and carry five tons of coal. The average load of each engine, during the busy months of the year, is about 410 tons of coal, (of 2,240 lbs.) The cost of hauling coal on this road, is about 35 cents per ton. Freight or merchandize, 75 cents per ton, and passengers 41 cents each, through. Its grades have chiefly secured this great economy in transportation.

The total length of lateral railroads, connecting



with the Reading railroad, under other charters and corporations, but all contributing to its business, using its cars, and returning them loaded with coal and merchandise, is about 95 miles. Some of these railroads are constructed in the most substantial manner, with the best superstructure at present used in the country.

By the monthly reports which have been made of the business of the company, it appears that the receipts from December 1st, 1845, to October 31st, 1846, have been \$1,707,312 25. The receipts for the remaining month of the fiscal year, which ended Nov. 30th, 1846, will be sufficient to swell the gross receipts to about \$1,900,000.

In the last annual report, the managers estimated that the gross receipts would be, for the same period, \$1,725,000. From this statement, it appears that unless the expenses vastly exceed the estimate given in the same report, the result of the year's business will prove very gratifying to the stockholders.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. E. MINOR, 105 Chestnut St., Philadelphia.

Saturday, February 20, 1847.

### PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Parce.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" " Reading, 58	2.25 and 1.90		
" " Pottsville, 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

### The Iron Trade.

We have received, by the *Sarat Sands*, our London papers to the 18th of January, inclusive, and also an interesting letter from a friend, from which we learn that the prices of iron are fully sustained—and large orders for bars unexecuted, as the limit being below quoted prices, and sellers will not recede. Bars are quoted: Welsh at £9, and Staffordshire £11 a 11 10. Rails average £9 15 a £10. There is evidently an upward tendency, though slight, in the trade—and we are of the opinion that it will advance still further in the course of the current year.

The following statement, in relation to the iron manufacture in Scotland, will be found interesting: There were in blast in Scotland, previous to 1846, 68 pig iron furnaces—24 out of blast, and 4 building. In 1846 ten new ones were erected and put into blast, and 6 new ones building. On the 1st of January, 1847, there were 98 in blast—24 out of use and 12 building.

There were shipped from Great Britain to foreign countries, in 1845, 54,671 tons, and in 1846, 119,100 tons, showing an increase of 64,429; and coastwise, in 1846, 257,861, making the total shipment for that year, 376,951. Local and inland consumption,

for all purposes, 288,049 tons; and stock on hand, December 31, 1846, 145,000 tons—thus showing the make of last year to be 810,000 tons.

It is a curious fact, shown by this statement, that while the export of 1846 was more than double that of the previous year—the amount sent to the United States was only about one-half as great—viz: in 1845, there was shipped to the United States 25,915 tons, and in 1846, only 13,918 tons!

Extract of a Letter from an intelligent friend now abroad, dated "7 Howard Street, Norfolk Street Strand, London, January 18th, 1847."

He says: "I see by the railway papers that the gross increase of receipts last year, i.e. 1846, over 1845, are considerably over £1,000,000, and that upwards of £900,000 of this sum has been yielded by fifteen companies, among which are the Dublin and Drogheda, Eastern Counties, Great Western, South Western, etc. The revenue of the Dublin and Kingstown has decreased—a solitary instance—£3,900. The following great increase of receipts per cent. for small increase of miles, I think fully bears out what you have so often stated in your Journal, i.e. a railway will always create a business which will pay.

	Miles in 1845.	1846.	Increase.	Per cent.
Norfolk railway,	59	70	11 miles*	135
York and N. Midland,	53	162	109 "	86
Sheffield and Manch.,	19	45	26 "	82
Eastern Counties,		116		62
South Eastern,	88	140	52 "	59
London and Brighton,	60	112	52 "	15
Manchester and Leeds,	84	117	33 "	16
London and N. Western,		say 20 "		7
Great Western,		" 20 "		7
Midland,				7

You will find on page 51, January 9, 1847, of the *Railway Times*, an article on the iron trade, taken from the *London Price Current*—which shows conclusively that the make of iron has fallen off greatly, and that there will not be a supply of railroad iron. It is said that 4,000,000 tons will be required for the British and Irish railways, already passed, and to be passed this session of parliament. If this be so, I do not see that the Pennsylvania iron makers need fear for the result of their investment in the manufacture of iron. The Eastern Counties railroad company are about to build a village on their line, of 300 houses, at a cost of £206,000, the contract having been given to builders in Stratford.—Why cannot all railways leading from cities pursue the same liberal policy, and thereby greatly benefit their interest? They have recently opened a road of about 100 miles in Prussia, between Berlin and Hamburg.

I will send you by the next regular steamer, a book recently published here, containing probably more information upon the subject of railways than any book heretofore published.

Truly your obedient servant,

EDMUND HEDGE."

In the writer of this letter the readers of the Journal will readily recognise the gentleman who has, for so many years, been connected with its publication. Mr. Hedge is well acquainted with the condition and prospects of our American railroads, and he will be apt to look at works of a similar character abroad with a critical eye, and we may therefore expect from him many interesting facts, from which we hope to draw lessons of utility and profit. Of one thing we are certain, and that is, that he will not allow an opportunity to escape him of avail-

\* Agricultural.

ing himself of what may be useful to his countrymen in the extension of the railroad system in this country; and we know of no young man of his age, not a practical engineer, who would be as likely to gather as much really useful information on the subject as Mr. Hedge—and we hope, therefore, that he may be successful in his present pursuit, and thus be able to visit most of the public works in Europe—as we understand he proposes to do before he returns.

### Progress of our Railroads.

The "Hudson River Railroad," from New York to Albany, is going forward. The subscriptions, at last accounts, amounted to \$2,000,000. The amount subscribed in Sing-Sing is \$50,000, in Poughkeepsie about \$40,000. The "wide gauge" is talked of for this road—and the subscriptions, thus far, appear very encouraging. The New Yorkers have "waked up" at last, it would seem, and the prospect now is very encouraging for this work.

A competent and distinguished surveyor has been employed for the purpose, and a new route—said to possess great advantages—has been proposed for a railway between Burlington, Vt., and Ogdensburg. The line in leaving Burlington, is to run along the south side of Lake Champlain, until it reaches St. Albans—from thence through Hog Island and St. Albert, in a direct line to Rouse's Point, where every facility is found for the construction of a permanent bridge across the Richelieu; the line then pursues its course through a level track of land, a little to the south and parallel to the divisional line '45, passing through the thriving village of Malone, and from thence taking the direction up on the borders of the St. Lawrence to Ogdensburg.

About 30 miles of the Baltimore and Ohio railroad have lately been newly laid down with a rail 51 pounds to the yard. The effects of this improvement, says a cotemporary, are already manifested in the more early and regular arrival of the trains at both ends of the road, they will be further felt in the reduction of expense in the maintenance of the road and machinery; and the increased safety and comfort of the travellers passing over the line. It has been the intention of the company to extend this road to Wheeling: but the president, Mr. McLane, in a recent letter, expressed doubt of the practicability of the route, and encourages its extension to Pittsburg.

The railroad from Burlington to Brandon, Vt., has been contracted for at \$7,300 per mile—a distance of fifty miles. The lowest estimate made by the engineer who located the road, was \$14,500 per mile! The amount for which it has now been let out, is considerably less than any one supposed it could be built for.

The annual meeting of the Champlain and Connecticut river railroad was held at Rutland, Vt., on the 13th inst. Hon. Timothy Follett, of Burlington, was re-elected president. The division from and including the summit at Mount Holly to Bellows Falls, about 35 miles, is contracted for at something less than \$12,000 per mile, on the same conditions as above set forth. The executive committee were directed to take measures for contracting for the remaining section of 31 miles, from Brandon to Mount Holly, in season to have the grading completed by January 1, 1849. It is expected that the grading, masonry and bridging of this division, will be let at a price not far from \$1,100 per mile.

The Danvers (Mass.) Courier says, that measures are being taken to have the stock on the road taken up with great hopes of success. Should the road be constructed from Danvers to Boston, it will

be but a few years before all the Newburyport travel will pass through Danvers, a road from Danvers to Georgetown only being needed.

We learn by the Newburyport Herald, that a meeting of those interested in the construction of a railroad from Newburyport to Haverhill, was held at Newburyport on the 8th inst., at which a committee was chosen to procure subscriptions to the stock. The road is designed to go through Georgetown and Bradford, and will be 15 miles in length.

The Northern (N. H.) railroad company have entered into a contract with R. H. Campbell, Esq., of Philadelphia, to construct the bridge across Connecticut river, near the mouth of White river, to connect the Northern and Central roads.

Several petitions have been presented to the New York Legislature for plank roads from Rochester to Greece, to Churchville, to West Henrietta, and to Brighton. The stock is all subscribed for the Rome and Oswego plank road. It is to be commenced immediately.

The Claremont Eagle says that the Sullivan road, connecting with the Vermont Central at Windsor, will be completed by the 1st of January, 1848.

The net earnings of the Norwich and Worcester company in 1846, were over \$90,000, or nearly six per cent, but the loss of the steamer Atlantic has absorbed \$70,000 of it.

The receipts on the Western railroad for the two months ending January 31st, 1847, as compared with the corresponding months the previous year, show an increase of \$33,133 82, viz:—Two months ending January 31, 1847:

Passengers.	Freight.	Other resources.	Total.
\$50,008 93	109,680 54	4,949 66	164,638 13

Two months ending January 31, 1846:			
\$58,717	77,543 69	5,242 69	131,504 31
			\$33,133 82

#### Great Central Railroad from Philadelphia to St. Louis.

BY JOHN A. ROEBLING, C. E.

Written for the Railroad Journal, and read before the Board of Trade of Pittsburg.

Railways appear to be destined to supersede all other means of intercommunication. Among the great mass of modern inventions and improvements, none perhaps are of greater importance, and will contribute more to the great and common interests of mankind, than RAILROADS and TELEGRAPHS. It is not improbable, that in a country like Russia, whose Autocrat has ordered the construction of railways upon a gigantic scale, this system of iron bands may first prove another powerful mode of enslaving more thoroughly the masses of the people, but it will surely aid in their eventual emancipation. Railroads and Telegraphs may be hailed as the latest offspring of the spirit of the present age; they have imparted a new and most powerful impulse to the social movement, from which will yet flow a vast train of beneficial results.

One of the best proofs of the advancement of mankind in true civilization is, that the industrial efforts of nations are no longer squandered upon the creation of vast monuments of pride and of war. The partial attempts at improvements during the middle age, have been followed by a generous rivalry among nations, states, and communities, in the construction public works of general utility and of vast extent, particularly highways, canals and railroads. So far has this system been successfully developed, that we may project works with unerring certainty in advance of population and traffic. In place of railroads growing out of commerce and wealth, the former are now creating the latter. Like a magic

wand, they open the slumbering resources and long-hidden treasures of the earth; convert stone and iron into gold; draw into bonds of union and amity isolated individuals, as well as communities and nations; unchain long-cherished prejudices and selfishness, and cause to be made more simultaneous exertions, in all that is useful and good. The nobler feelings and sentiments of man are likewise partaking of the benefit of this general move; they will be roused to greater activity by the enlarged scope rendered accessible by the increased facilities of communication.

While canals and turnpikes (ever since their general introduction) have experienced but little improvement, because they are not susceptible of it—railroads, on the other hand, have undergone a constant change towards the better. Since their nature admitted the application of mechanical power, they have largely partaken of the benefits, which have resulted from the late astonishing developments of mechanical science. To the successful application of the mighty agency of steam, the vast extension of the great usefulness of railroads is mainly to be attributed; time itself and space have almost been annihilated. But, I may well ask, where is the country on earth, as much to be benefited by these modern improvements, as our own? We abound in the elements of wealth, but want the means of moving, working and distributing them! Inexhaustible supplies of coal and iron invite us to use and apply them for the construction of these and other useful works of art.

The geographical features of the Mississippi valley, it is said, afford the best guarantee for the stability of this Union. But I think, that with greater confidence yet, we may entrust the future fate of our country to that great net of railways and telegraphs which soon will spread over the vast extent of its surface. No less valuable will this network prove, in a political and national point of view, in case of war. From the rapidity and certainty of conveyance, which railways afford, at all seasons of the year, they will serve as the most effective means for the concentration of troops, at points where they are wanted, and for the rapid transportation of supplies. An invasion by the most powerful enemy can be repelled with little effort. Railroads, in fact, will vastly contribute to prevent long protracted wars—civil, as well as national.

The GREAT CENTRAL RAILROAD, as I would term it, proposed to be constructed from Philadelphia to St. Louis, presents itself among similar projects of the day, foremost to the serious attention of the citizens of Pennsylvania—and with peculiar force to the citizens of Philadelphia and Pittsburg. The storm of last year having subsided and given place to a calm, favorable to the discussion of a magnificent enterprise, it becomes now our duty to consider what is the true interest of the two cities which are members of the same commonwealth; and to bring about a mutual understanding, while there is yet time. The question before us is no less than the organization of a company for the construction of a continuous railroad from tidewater to the Mississippi, or from Philadelphia to St. Louis, through the centre of Pennsylvania, Ohio, Indiana and Illinois. The whole west is invoked to assist us in this vast work, which is destined at some future day to become one of the greatest thoroughfares on the face of the globe. Preliminary steps have already been taken for the consummation of one part of this enterprise. The object of the following remark is, to advance the good cause by a candid examination of its merits.

In surveying the geographical features of the vast extent of country which is to be traversed by the contemplated railroad, we discover, that it may be located nearly through the centres of four of the richest states of the Union, Pennsylvania, Ohio, Indiana and Illinois, with an aggregate population of nearly seven millions. The whole extent of road to be constructed will be found to be within nine hundred miles. No railroad has ever been undertaken, which offers to the projectors more magnificent prospects of success. Let us look at it for one moment. Here is the city of Philadelphia forming the eastern terminus, concentrating within herself immense resources and wealth, capable of importing and exporting to any extent, and already the centre of a great manufacturing district. From this city, advancing west, we pass through the centre of Pennsylvania, by the way of Harrisburg, to Pittsburg, the great workshop of the west, the Birmingham of America. Here we meet a population of 65,000, and a vast commercial and industrial business, which will, in course of time, extend beyond any calculation which now can be made. Let us only remember, that there is no point on the face of the globe, and this is asserted without admitting a single exception, which is better calculated than Pittsburg and the surrounding country, for the production and manufacture of iron and machinery. This business is yet in its infancy, but will steadily increase with the population of the valley of the Mississippi. To support the above statements, I will mention, that the prospects of Pittsburg are based upon two solid foundations, which time itself cannot wear out. One is formed by the inexhaustible beds of the best quality of bituminous coal, the other by the veins of excellent iron ore discovered throughout the surrounding country.

The products of that immense industry of Philadelphia, Pittsburg, and of the greater part of Pennsylvania, are to be carried to the west by the proposed railway, to be exchanged for the rich agricultural productions of that fertile country. The travel and intercourse which will naturally grow out of this business, will be conducted by this route at all times of the year speedy and safe. The main stem of this road is to be continued from Pittsburg—not to the lake, this would at present be a great mistake—but by the most direct course to Columbus in Ohio, thence to Indianapolis in Indiana, and by way of Terre Haute and Vandalia, to St. Louis in Missouri. The object of this route is, to traverse the three great western States, Ohio, Indiana and Illinois, and terminate at St. Louis, which city is destined to become the emporium of the great valley. The principal part of the business and travel of these States will, as far as it can be directed east, be attracted by this road, legitimately, and without any farther effort, and will be safely retained for the future.

To insure to this road the travel and business of these States, and to make it triumph over its competitors north and south, its location as well as construction must be undertaken and conducted upon a plan, fully commensurate to the great objects to be gained. The business of the west is within our reach, we can grasp and retain it with unerring certainty, provided we start and act systematically throughout. The means we should employ are to be fully adequate to the magnitude of the object we have in view. Narrow, timid minds never solved a difficult problem, nor did they ever engage in a great and bold enterprise, without abandoning it in despair.

In order to consummate this great undertaking,



all the spare resources of Philadelphia and of Pittsburgh are to be appropriated, and just in proportion as investments will be made, boldly but judiciously, will they be rewarded in return. This proposition is susceptible of the strongest proof. No half measures will in this case answer the end; insufficient capital, and unskillfully applied, may start the enterprise, but will not succeed in carrying through successfully, and maintaining it against the vigorous competition of powerful neighbors.

To be better enabled to judge correctly, I propose to take a general view of the unprecedented spectacle which at this period is presented by the generous rivalry of the States of Virginia, Maryland, Pennsylvania, New York and all the Eastern States, to secure the trade of the Great West. The people of Maine, New Hampshire, Vermont and Lower Canada, have engaged in the construction of the *Atlantic and St. Lawrence* railroad, which is to connect Portland in Maine, with Montreal in Canada. This road, once completed, will make Portland the second seaport in the east; it will become the principal port of entry for the St. Lawrence country, and will rival with Boston and New York in the trade of lake Ontario and lake Champlain.

The next great route of importance, and partly commenced, leads from Boston by way of Concord to Burlington on lake Champlain, thence to Odensburg on the St. Lawrence. It is to secure to Boston the trade for which Portland is making an effort.—It is expected that the local business on the latter road will be sufficient to maintain it.

Next comes the Great Western road from Boston to Albany, and its extension to lake Erie by the New York roads. This route claims a little more of our attention, as it will, when completed, come to some extent in competition with our own. The great success of the Western road is well known; it has astonished and alarmed the city of New York, which like Venice of old, never dreamed of the possibility that any part of their so well established business could be diverted. The Western railroad presents a most forcible argument in support of this *new doctrine*, that the best water communications are destined to become subservient to railroads, for travel as well as freight. I draw your attention to this question: if the Hudson river between New York and Albany, the best steamboat navigation in the world, 150 miles in extent, is not capable of commanding the trade and travel exclusively, in competition with a railroad of over 200 miles long, from Albany to Boston, with two high summits and objectionable gradients, what may be expected of the success of steamboat navigation on the upper Ohio, in competition to a railroad well located and with moderate gradients.

Freight is carried by steamboats at the rate of from 2 to 5 cents per 100 lbs. per 100 miles. This is at the rate of from 40 cts. to \$1 per ton per 100 miles. Coal is transported from Pottsville to Philadelphia by railway at less than \$1 per ton per 100 miles.—But whether steamboats charge a few cents more or less, will little influence the transport of the great west, while the saving of transshipment and commission, and the certainty, rapidity and safety of conveyance, are of much greater moment to the merchant and the traveller.

The sagacious citizens of Boston, when they commenced the Western railroad, had matured an extensive plan of operations, which they are now successfully carrying out. They knew that they could divert a portion of the trade of New York, by the construction of the Boston and Albany road.—They were met by the capitalists of Albany, and

have returned their favors by aiding the Auburn and Rochester road. They have succeeded in establishing an uninterrupted railroad communication from Boston to Buffalo. The city of New York with her great natural advantages, looked at their efforts with indifference and contempt, but wondered how their eastern neighbors, whose mercantile sagacity has become proverbial, could forget themselves in undertaking such a visionary scheme, of diverting the trade and travel of the Hudson river!

The real estate of the city of New York, as is stated by various statistical writers, advanced since the completion of the New York canal, from \$100,000,000 to \$252,000,000, when in 1840 the Western railroad was opened. Here progressive increase has since stopped, while the wealth of Boston, during the same period, nearly doubled, which increase, it is admitted by all parties, is principally owing to the success of the Western road.

The great example of Boston cannot be represented to the contemplation of the citizens of Philadelphia and of Pittsburgh with sufficient force. The success of the Western road is unparalleled in the history of railroads. A railway of 202 miles long, with two summits, one of 1400 feet above tide, the other 918 feet, and with grades of 83 feet per mile, is successfully competing with the steamboat navigation of the world renowned Hudson, a distance of 52 miles less than the railroad! Massachusetts has by a bold stroke appropriated to herself a share in the trade of New York, which was created at an expense of \$30,000,000 by the construction of the New York canals! The plan of Boston is, to extend their route direct from Rochester to the Niagara river, crossed below the falls by means of a bridge, and connect with the Western railroad in Upper Canada, which is to be commenced this year, will join the Central road through Michigan, and be continued to Chicago.

The success of the Western road has roused the energies of New York. A renewed activity on the New York and Erie railroad, and the revival of the proposed Albany railroad, are the consequences.—The roads now in construction and contemplation by New York, will be carried on as rival lines, and nearly parallel to the Boston system. Lake Erie will in a few years be completely encircled by railroads, connecting with Boston as well as with New York.

The trade of the State of Michigan will be monopolized by these two cities. Philadelphia, however, has it within her power to appropriate to herself the greater portion of the lake trade, as far as the trade is now furnished by the States of Ohio, Indiana and Illinois. The shipping business of the lakes is made up by the trade of the surrounding States.—The lakes themselves offer no element of trade except a few fish. If, therefore, by the construction of the proposed Great Central Road from St. Louis to Philadelphia, the western merchant is offered a direct and well constructed railroad to the seaport, in place of the dangerous, tedious and uncertain sea route, he will most certainly avail himself of the former, for travel as well as transportation. It is not from the lakes, which are closed five months in the year, but from the surrounding country, that we expect to derive the support of our road.

We are apt to mistake effects for causes. By removing or changing the latter, we are certain to control the former. This principle applied to the lake trade, we discover, that by the construction of the proposed road, which will intersect nearly all the present avenues to the lakes at right angles, we shall at once strike at the main roots of this trade.

The New York canal has been, and is yet, the great feeder and outlet of the lake trade. But this canal, like all others, is destined to be superseded by railroads, and in proportion as this takes place, the shipping of the lakes will be affected. It is not maintained here, that the New York canal will be abandoned as unfit for transportation—being one of the best situated, and when the enlargement is completed, one of the best constructed improvements of the kind, it will be able to maintain itself in competition with railroads. But it will cease to be the exclusive thoroughfare to the west, the greater bulk of transportation will go by railroad. It may be added, that the fast increasing population of the lake country and of the west will eventually furnish ample trade for the support of all the principal lines in operation and proposed.

Public opinion has strongly set in favor of a continuous railroad from Philadelphia to Cleveland via Pittsburg. As far as Philadelphia and the lake are concerned, the connection would be less advantageous than a direct road to the town of Erie. But what can be expected from making either Cleveland or Erie points of termination of a great road, such as is now in contemplation? At the town of Erie we would encounter the opposition of the New York and Erie railroad, (now constructing.) A few miles more or less of railway transportation will not influence trade, as will appear from subsequent remarks. The superior capital and commercial advantages of New York will draw the trade to it; the great tonnage which will pass over the New York and Erie railroad, will allow that company to transport at a low rate, and the consequence will be, that the lake trade will seek the New York market, although by a longer route, in preference to the Philadelphia market.

The result, however, will be very different, when we tap the lake trade at its sources, save several hundred miles of distance, and avoid the risk, danger and delay of lake navigation altogether.

The distance from Philadelphia to Cleveland, by way of Pittsburg and Central route, is .... 467 miles.  
From Philadelphia to town of Erie by the  
Sunbury and Erie route..... 435 "  
From New York to Dunkirk, by N. York  
and Erie railroad ..... 470 "  
From New York to Buffalo, by N. York  
canal ..... 508 "  
From Boston to Buffalo, by railroad ..... 521 "

These distances show that Philadelphia is as well, and better, situated than New York and Boston for participation in the lake trade. With respect to rise and fall, the grades are also in favor of Philadelphia. But the differences between these routes is too trifling, as to exercise a decided influence upon the cost of transportation. The latter will more depend upon other contingencies.

The trade of Ohio, Indiana, Illinois and Missouri, can be secured to Pittsburg and Philadelphia, with positive certainty, by the construction of the great Central railroad. Neither New York nor Boston can undertake to compete with this route, which will intersect all the numerous improvements and lines of transportation, established in the western States, for connecting the Ohio river with the lakes. The business carried over these lines, will be intercepted by the proposed route.

Pursuing a direct course west of Pittsburg, near Steubenville, we will intersect the great Ohio canal, near Salem, and proceeding nearly parallel to it for some distance, we reach Columbus. It will be no exaggeration when I state, that by the extension of our road from Pittsburg to Columbus, we will have

secured one-third of the whole lake trade. The Western Reserve will be pledged to our route; the whole trade of the valley of Michigan, and of the Scioto, and as will be seen directly, of the balance of the State, will be secured. At Columbus we connect with the road to Cleveland, which is contemplated to be constructed, also with the road to Sandusky. Proceeding west, we avail ourselves of the road to Springfield, and connect with the road to Cincinnati. The great aim of the State of Ohio, and of Cincinnati particularly, has been to form communications with Lake Erie, and thereby with the city of New York. If Philadelphia will pursue a judicious policy, she can take the place of New York, in relation to the commerce of nearly the whole of the State of Ohio. Pennsylvania will be readily met by the liberal policy of that State, in granting connections, which will render tributary to our road, nearly the whole of that vast system of improvements which traverse this State in a north and south direction.

Will it not be better policy, in place of making a road from Pittsburg to Cleveland, a point over 100 miles distant from the great centre of trade, to reach that centre directly by a railway, traversing all the active lines of transportation at right angles, and at such a distance from the New York or Lake Erie line, that the latter can never interfere with the free operations of this great route? The future success of the Central road will require one or two branches to Lake Erie, but their construction should not now interfere with the speedy consummation of the main object. Pittsburg is already connected with the lake by two water communications, to which another will shortly be added. The whole tract of the Western reserve might now reach Philadelphia by way of Pittsburg, if such was not prohibited by the high rate of tolls on the Pennsylvania canal.

Let us remember, that Cleveland itself has no resources of trade. It is only one of the depots of the State of Ohio, having derived its importance from the Ohio canal. By intersecting this canal half way between the lake and the Ohio river, we shall secure the greater part of the business now permitted to reach Cleveland. When we consider the charges, delays, damages and risks, incident upon the transportation of produce from the interior of Ohio to the city of New York, by way of Cleveland, Buffalo, and Albany, on which routes, three transshipments and agencies are to be incurred; and we compare this line to the great central route to Philadelphia, without any transshipment, delay, or risk, and consuming only one-fifth of the time; there is little sagacity required to foretell the result.

For the transportation of bacon and flour to the eastern market, and for transportation, the uninterrupted and rapid conveyance by the great Central route, will be preferred to any other, even at a higher rate of charges. With the aid of the electric telegraph, the western merchant can be kept constantly informed of the state of the market; he will, therefore, never risk, but will be ready at all times, to fill an order with certainty within four days notice.—Speculations and injurious fluctuations will then cease, trade will be established upon a more solid basis. It is true that the business of commission, the heaviest drag upon commerce, will be seriously affected by such a change, but just in proportion will the community at large be benefited.

To prove conclusively that the trade of Ohio, which now goes to New York, may be directed to Philadelphia, the following simple statement of facts will suffice:

Distance from Philadelphia to Pittsburg,

by the most approved route, when finally located, will not exceed ..... 330 miles.  
Distance from Pittsburg to Ohio canal by Steubenville ..... 105 "  
Total, from Phila. to Ohio canal ..... 435 "

A charge of 2½ cents per mile per ton of heavy freight, is a high remuneration on a good substantial railroad, with moderate gradients, and doing a heavy passenger business, beside carrying freight. Coal is transported on the Reading railroad, at less than 1 cent per ton per mile. The charges on the Western road are from 1½ to 3 cents per ton per mile; flour on that road is carried 303 miles for 30 cents per barrel. The great Central road will do a heavier business than any other road in the country, except the Reading; it will, therefore, be well enabled to carry western produce at the rate of 2½ cents per ton per mile, or \$10 87 for the whole distance from the Ohio canal to Philadelphia. Lighter and more valuable merchandize will be carried at the rate of from 3 to 4 cents per ton on \$13 05 to \$17 40 for the whole distance—equivalent to 65 cents and 87 cents per 100 lbs. Allowing 10 barrels of flour per ton, this article will be conveyed through at the rate of \$1 08 per barrel.

Now the present average charge for the transportation of 1 barrel of flour by the N. Y. canal from Buffalo to Albany is ..... 60 cents.  
Add to this, charge from Cleveland or Sandusky to Buffalo ..... 20 "  
From Albany to New York ..... 10 "  
Total charge by New York route ..... 90 "

To these charges we have to add the expense of transportation through the State of Ohio, on the one hand to the lake, on the other to the railroad, and we shall find that the great Central route will be cheaper than the New York route.

It is quite evident that the New York lines can never compete with the great Central, for the trade between it and the Ohio river, nor can they aspire to any considerable portion north of the railroad.—To this may be objected, that the charges on the N. York canal will be reduced when the enlargement is finished. This is true, but by the time this is accomplished, we shall be prepared to reduce also the charges on our road. For it is well known, that the capacity of a railroad, for cheap transportation, depends in a great measure, upon the extent of its business, and the great Central road is destined to do the heaviest business in the country.

Neither the New York and Erie railroad, when completed, nor the Boston line, will be able to compete with the great Central; provided, the business on the latter can be sufficiently extended, to admit of lower fares. The distance from the Ohio canal to Philadelphia was stated to be ..... 435 miles. The distance from Cleveland to N. York

by the N. Y. and Erie railroad is ..... 640 "  
From Cleveland to Boston by railroad ..... 740 "

Cleveland is a point nearly opposite to the point of intersection of the Ohio canal by the great Central road; therefore a correct point to start comparisons. The grade on the latter route will not exceed 45 feet; those on the New York and Erie, reach 60 feet per mile, while the Boston route has several grades as high as 83 feet per mile. The conclusion appears to be legitimate, that neither of the northern railroads can come in competition with the great Central, for travel or freight. Owing to its more southern location, this road will be less impeded by snow than its northern rivals—which is also an important advantage.

From Springfield, in Ohio, to Indianapolis, in Indiana, the line of the national road nearly indicates the route to be pursued. Before the State line is reached, the Miami canal will be intersected, and its trade secured. The Whitewater canal in Indiana, which passes through a fertile country, and terminates at Cincinnati, is the next improvement which will be crossed. Indianapolis itself forms a centre from which various lines of improvements diverge, some finished, others in course of construction, others abandoned for the present. The Madison railroad, which leads from this point to Madison, on the Ohio river, is in operation. The capital of Indiana is undoubtedly the best point for attraction as well as distribution.

From Indianapolis to St. Louis, we will have to follow the general route laid out for the national road, by way of Terre Haute and Vandalia. It is gratifying to learn, that the citizens of St. Louis have lately agitated the project of a railroad to Indianapolis. I would propose to open a correspondence, for concerting measures for a simultaneous move in the east as well as in the west, towards the same object. The west feels the want of a good railroad communication with the east. This is the reason why I have headed this article "*The Great Central Railroad from Philadelphia to St. Louis.*"—I wish to draw the attention of our citizens to the necessity of taking preliminary steps for an early construction of the whole line to St. Louis. The States of Ohio, Indiana, Illinois, and Missouri, are all interested in this work, the completion of which is not above their abilities, when ably supported by the east. The citizens of St. Louis are aiming for Columbus, to form a connection with New York.—This is, therefore, the point where the east will have to meet the west.

The idea has been suggested to continue the road from Pittsburg to Beaver, thence diverging to Cleveland and Columbus. But this would be taxing all the immense traffic from and to the Western States with the expense, which the additional distance caused by following the meanderings of the river, would impose. The additional annual expense, to which the business of this road would be subjected, would, in a few years, equal the capital required for the erection of a railroad bridge at Steubenville. A direct road from Pittsburg to Steubenville appears to be feasible by way of Chartiers and Hormann's creek, with grades not exceeding 45 feet per mile.

We have seen that we possess superior advantages over the northern routes in competing for the western trade. But we have also to contend with two formidable rivals in the south, the Baltimore and Ohio railroad, and the great Virginia route, projected from Richmond to Cuyandot, in a direct course to Cincinnati.

I propose, first, to examine, to some extent, the claims of the Baltimore and Ohio railroad. This road is one of the earliest lines commenced in the United States. The stockholders of that company may be denominated the pioneers of railroading. In their attempt to complete a great railroad, at a period when this species of improvements was yet in its infancy, that company has passed through a great ordeal, by sacrificing vast sums of money by way of experiments. Their location from Baltimore to Harper's Ferry, was originally calculated for horse power, and the superstructure laid down with this view. The rapid improvements in the construction of the locomotive engine soon changed the whole aspect of railroads; that location and construction which was good enough for horse power, could no longer serve the improved locomotive. A



partial reconstruction of the road from Baltimore to Harper's Ferry, has become a necessary consequence.

The enterprising citizens of Baltimore are entitled to great credit for their indomitable energy and perseverance, which they have evinced in the construction of the great improvement in question.—Considering their resources, they have done more than any other community in this country. They have, in fact, attempted too much. The emporium of the little state of Maryland originated the bold idea of extending a magnificent line of railroads through the territory of her neighbors, to connect the Ohio with the Atlantic!

Pennsylvania, as well as Virginia, have at last become aware of the importance of this great project, and they are now viewing it with the eyes of rivals. It was by the generous invitations of the adjoining States, that the city of Baltimore was prompted to make exertions, beyond its strength, in pushing on the enterprise. One branch of the line has been extended to Winchester, the main stem to Cumberland. These, together with the Washington and York branches, in which the company is interested, are doing a fair business and paying well. The stockholders appear to be satisfied with the result of their efforts; they feel that they have exerted themselves to the extent of their ability, and wish to pause; they are unwilling, as well as unable, to proceed in the prosecution of their enterprise for the present. Unfortunately for this company, two great rival routes have been projected with the avowed object of securing the western trade. The ambition and future success of these rivals, will influence the fate of the Baltimore and Ohio; it may delay, and perhaps totally prostrate, their design of completing their line to the Ohio river below Wheeling.

In advocating, as a citizen of Pennsylvania, the interests of the great Central railroad, I am desirous of abstaining from all unjust comment on the Baltimore and Ohio railroad or other rival lines. But as an engineer, who has made the great leading railroad routes, projected through the different States, a professional study, and who is called on by his fellow-citizens to state his views upon these important questions, I feel I should not be doing my duty, by abstaining from all comparisons.

The original design of the Baltimore and Ohio railroad company, was to extend their line to Pittsburgh and to Wheeling. Should they succeed in forming a connection with Pittsburgh, which is now very uncertain, their line would come in direct competition with the great Central. According to their reports and surveys, the distance from Baltimore to Pittsburgh, by the most approved route, will be 340 miles. This route is located along Wills' creek, on the eastern slope of the Allegheny mountain, which is ascended with a grade of 66 feet per mile for 23 miles long, when the *Sand Patch* summit is attained. The western descent commences at the same rate of 66 feet per mile, and continues for five miles long; here the headwaters of Cartleman's river are reached, thence the line continues descending at an easy rate along the Youghiogheny and Monongahela to Pittsburgh.

The surveyed distance from Baltimore to Pittsburgh, by the above route, is... 340 miles.  
The elevation of the Allegheny summit above tide, is... 3290 feet.  
The distance from Baltimore to Wheeling, by the most preferred route, is... 375 miles.  
The distance from Philadelphia to Pittsburgh by the Central route, when finally located, will not exceed... 330 "  
The elevation of the Allegheny summit, above tide on that route, is... 2184 feet.

To save distance on the eastern ascent of the Allegheny mountain, the engineers of the Baltimore and Ohio railroad company have surveyed another route, ascending along Jennings' run, at the rate of 90 feet per mile, and descending with a similar grade, by Flaugheries' run. Since the machinery and working of inclined planes has been so much improved, that all danger and delay can be avoided, it appears, indeed, questionable, whether inclined planes would not be preferable to 90 feet grades on the mountain route of the Baltimore and Ohio.

Few of those persons who have not had opportunities of comparing the maps of the Baltimore and Ohio with those of the Central route, will be found willing to credit the above statement of the relative distances of the two routes. They judge from the geographical position of Baltimore and Philadelphia towards Pittsburg, that the distance by railroad from the latter point to Baltimore, must necessarily be much less than to Philadelphia, without taking into consideration the increase of distance, which may be caused by the greater and smaller windings of the road. The location of the Central road is remarkably straight and direct, while on the other hand the route of the Baltimore and Ohio is exceedingly circuitous in its general courses, as well as in its detail curvature. This was rendered unavoidable by the serpentine character of the river courses which had to be pursued, and by the great obstacles which the steep ascent of the eastern slope of the Allegheny mountain presents to a location.

The passage of the Allegheny Mountains on the Pennsylvania route, on the other hand, is remarkably favorable as to grades and general courses. This can only be explained by the fact, that the mountains slope along the *Little Juniata*, where the line is located, forms a gradual descent, and gives us all the distance required, without deviating much from the general course. From *Logan's Narrows*, which may properly be considered the foot of the eastern slope of the Allegheny mountains on the central route, and which point is elevated 891 feet above tide, we have a distance of 32 miles to the Summit, which is 2184 feet above tide. This elevation, therefore, might be attained at an average rate of 40 feet per mile. The location varies from 26½ feet to 45 feet per mile, with some intervening levels. There are reasons to believe, that by a more minute and thorough examination, these grades can be improved.

The curvature on the central road will be much less than on the Baltimore and Ohio. The total rise and fall of the former, however, will exceed that of the latter. I have not been able to ascertain the precise amount of curvature on the Baltimore and Ohio railroad. The want of this item, therefore, will prevent me from presenting comparative tables of the equated distances of the two routes. The equated distances of the central route are to be found in Mr. Schlatter's report. Truth, however, prompts me to state, that in consequence of the greater amount of rise and fall on the central road, the total equated distance from Pittsburgh to the seaboard, appears to be in favor of the Baltimore route. From this it would follow, that the road will possess an advantage over the central road, in the transportation of freight—but of freight only—provided all the other relations are the same.

The capacities of the two waters, however, approximate so closely, that the success of their rivalry, will entirely depend upon other contingencies, which are independent of grades, curves and distances.

(To be Continued)

#### Incrustation of Steam Boilers.

Nothing perhaps has contributed so much to the occurrence of fatal accidents as explosions arising from the incrustation of boilers. Incrustation may cause explosions in various ways: by forming a layer of non-conducting matter between the metal and the fluid to be heated, and thus allowing the temperature of the former to rise to a high point, even to redness. The metal oxidizes rapidly at this temperature, and the boiler is thereby weakened and rendered incapable of sustaining the necessary pressure. But a more fruitful cause of accidents is the sudden removal of portions of incrustation, when the metal expands on the attainment of the high temperature; the water is thereby brought in contact with the heated metal, and evaporation takes place so suddenly as to resemble the evolution of gasses from the firing of gunpowder. Indeed, the results in both cases are identical. About two years back a Dr. Ritterbandt turned his attention to this subject, and succeeded in discovering a process which does not injure, by its chemical or mechanical action, the metal of the boiler, or other parts of the engine exposed to its influence. The Society of Arts rewarded the ingenious inventor with its gold Isis medal for his discovery. The principle upon which Dr. Ritterbandt's invention is based is the chemical action which the muriate of ammonia exerts upon the carbonate of lime, the incrusting material. Dr. Ritterbandt discovered that by introducing muriate of ammonia into a boiler containing water holding lime in solution, the carbonate of lime, instead of depositing when the carbonic acid by which it was held in solution was expelled at a high temperature, became converted into muriate of lime, a substance eminently soluble, while the carbonate of ammonia, likewise formed by the double decomposition, passed off with the steam, so that the boiler could not foul. The process is equally applicable to fresh and salt water. The inventor has proved, that when sea water is boiled, the incrustation produced is not formed of salt, but of calcareous matter, the salt not depositing until the water has attained a density far beyond that at which the boilers of marine engines are worked. The object of the frequent blowing off which obtains in practice is to prevent the accumulations of the deposited calcareous matter. By preventing the formation of carbonate, by the addition of muriate of ammonia, the necessity of blowing is, to great extent, dispensed with, for while with the best contrived apparatus, it is found impossible to continue working at a density above 20 degrees marine hydrometer, with the plan of Dr. Ritterbandt a density of 60 degrees may be safely employed.—Three-fourths of the quantity of water usually blown out is thus economized, and consequently, that portion of the loss of fuel saved. The soundness of Dr. Ritterbandt's principle has stood the test of time and experience.—Twelve months have elapsed since his discovery was brought under the notice of the public, and in that time its operation has been tried in every variety of way with eminent success—in large and small steamboats, in

stationary and locomotive engines, working with water from all localities, and in every instance has it been found perfectly effective, not merely in keeping the boilers where it has been applied clear of deposit, but in disintegrating that which had formed previously to its application. And we should be wanting in justice to the ingenious inventor, were we not to avow that the invention has been tried for nearly 22 months upon the boilers of the engines printing the "Times," working on an average 17 hours per diem throughout the year. Not only have the boilers been kept perfectly free from deposit, but an incrustation which was formed previously to the application of the invention has been completely removed. We can further state, that neither the boilers nor any part of the machinery has been in any even in the slightest degree, acted upon or injured by the action of the remedy in question.—*London Times.*

**London and York Contract for Rails.**—On Wednesday the two firms of Bailey, Brothers, and the Colebrook Dale Company, took the contracts of the London and York for 35,000 tons of rails, the larger portion by far being taken by Bailey, Brothers. The price was near or about £10 delivered; the rails, we believe, are to be only 72 lb. rails. Sir John Guest, the house of Thompson & Co., and a few others, tendered, but Mr. Crawby declined, not liking, it is said, the conditions of the specification. One of the conditions, it is reported, is, that the engineer, if within 12 months after they are laid down, disapprove of the rails, he may order the contractor to take them back without any appeal from him.—*Herapath.*

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
**DAVIS, BROOKS & CO.,**  
Jan. 2. [11f] 68 Broad St., New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address  
**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.  
For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

**THOMAS WEST, President**  
Boston and Maine Railroad.  
January 22, 1847. 34

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.  
**J. W. BROOKS, Supt. & Eng.**  
Detroit, January 5, 1847. 53

**A. & G. HALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10:39

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
ja45 Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
28f 79 Water St., New York

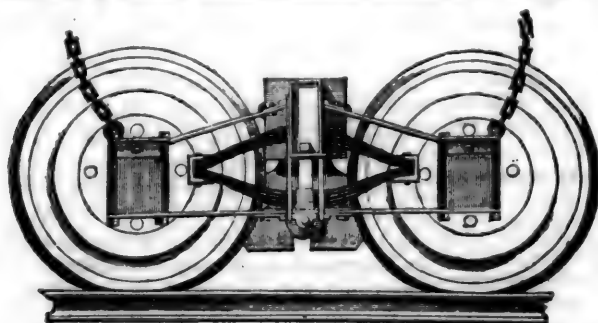
**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and } Pig Iron.  
Valley,

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

**New York, May 4, 1846.** **W. H. CALKINS, and Others.**  
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Supt. of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

**Reading, Pa., October 6, 1845.** [Signed,] **G. A. NICOLLS,**  
Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**  
**Jersey City, November 4, 1845.** **N. Jersey Railroad and Transp. Co.**  
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.  
**Long Island Railroad Depot,** [Signed,] **JOHN LEACH,**  
**Jamaica November 12, 1845.** 1y19 Supt. Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 130 Meeting street Charleston, S. C.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Eliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.**

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.**

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

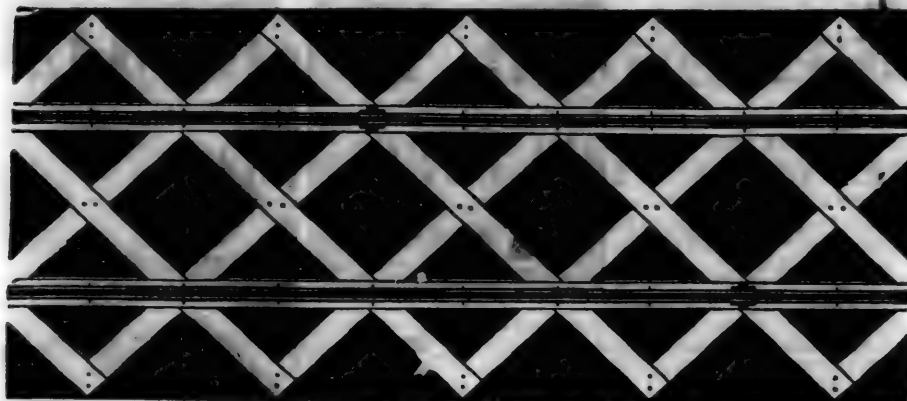
•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**DAVENPORT & BRIDGES CONTINUE**

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

## ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33tf

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ropes, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LES. OZ.	INCH.	LES. OZ.		LES.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	90
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 3	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.

No 23 Pear street,  
ly10 near Third, below Walnut,  
Philadelphia.

LAP—WELDED.  
WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

28 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**RAILROAD IRON.—THE "MONTAUR** Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

ly48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846.

46tf

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 9)

SATURDAY, FEBRUARY 27, 1847.

[WHOLE No. 558, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column " ".....	3 00
One square " ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice, Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.  
BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## BOSTON AND MAINE RAILROAD.

Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.  
Boston for Great Falls at 7½ a.m., 2½ and 3-25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3-25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3-25 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Super't.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" " Reading, 58	2.25 and 1.90		
" Pottsville " 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8y

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 3 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 3 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35ly

## SUMMER ARRANGEMENT.—NEW YORK

AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't, March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

## NORWICH AND WORCESTER RAILROAD.

Road. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly

J. W. STOWELL, Sup't.

### TROY RAILROADS.—IMPORTANT NOTICE.

Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 11 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/4 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/4 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/4 a.m., 8 1/4 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

### TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/4 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

### BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/4 and 11 a.m. and 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati,

O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

### TIME.

From Buffalo to Sandusky 24 hours.

Leave Sandusky 5 a.m. to Columbus 14 "

From Columbus to Cincinnati 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

### FARE.

From Buffalo to Sandusky, Cabin \$6 00

" " " " Steerage 3 00

" " " " Sandusky to Columbus 4 50

" " " " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuekahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 20, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuekahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 20, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 3 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at 9 a.m. and 3 1/2 p.m.

Arrives at 9 a.m. and 6 1/2 p.m.

Leaves York at 5 a.m. and 3 p.m.

Arrives at 12 1/2 p.m. and 8 p.m.

Leaves York for Columbia at 1 1/2 p.m. and 8 a.m.

Leaves Columbia for York at 8 a.m. and 2 p.m.

### FARE.

Fare to York \$1 50

" " " " Wrightsville 2 00

" " " " Columbia 2 12 1/2

Way points in proportion.

### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburgh via stage to Harrisburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3 o'clock,

a horse car is run to Green Spring and Owling's

Mill, arriving at the Mills at 5 1/2 p.m.

Returning, leaves Owling's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

### CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally 50 cts. per hundred.

On measurement goods 13 cts. per cubic ft.

On brls. wet (except molasses

and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery 40 cts. per hundred.

On hds. and pipes of liquor,

not over 120 gallons \$5 00 per hhd.

On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Supt. Transportation.

### THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mans-

field, 68 miles; thence by Cars to Sandusky, 56

miles to the Lake; thence Steamboat to Buffalo, 230

miles.

Fare from Cincinnati to Sandusky \$8 00

" " Sandusky to Buffalo, Cabin 6 00

" " " " Steerage 4 50

Fare by this route, although the cheapest across

the state, will be reduced in a short time, railroad

lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Col-

umbus at night.

Leave Columbus in the morning, arrive at San-

dusky same day.

Leave Sandusky, by Boat, in the morning, arrive

at Buffalo next morning in time for the Cars north

and east for Niagara Falls, Canada, Saratoga

Springs, Troy, Albany, Boston, New York, Wash-

ington, or Philadelphia.

Passengers should not omit to pay their fare

through from Cincinnati to Sandusky, or from Col-

umbus to Sandusky via Mansfield; as this route is

the only one that secures 56 miles [this road is run

over in 2h. 50m.,] most railroad which is new, and

is the shortest, cheapest and most expeditious across

the state.

Fares on the New York railroads are about to be

reduced. B. HIGGINS, Sup't, etc.

Sandusky, Ohio. M. & S. C. R. R. Co.

### THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for

Railroad Iron of any required pattern, and warrant-

ed equal in every respect in point of quality to the

best American or imported Rails. Also on hand

and made to order, Bar Iron, Braziers' and Wire

Rods, etc., etc.

PETER COOPER 17 Burling Slip.

New York.



**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles.  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings..... \$0 50 To Atlanta \$0 75 To Oothcaloga  
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones..... 0 50 0 62½  
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot..... 0 20 0 26  
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot..... 0 20 pr. 100 lbs. 35  
Crockery, per cubic foot..... 0 15 " 35  
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50  
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each..... 1 25 1 50  
Ploughs, (small,) and Wheelbarrows..... 0 80 1 05  
Salt, per Liverpool Sack..... 0 70 0 95  
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.  
Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE!** VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$31 00  
" " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1v14 **STOCKTON & FALLS, Agents.**

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 388 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 37½	0 62½
Cotton, per 100 lbs.	0 45	0 65
Molasses, per hogshead.	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 ly

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 3 p.m.

J. R. TRIMBLE,  
Engineer and General Superintendent. 2f

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon... \$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47f W. H. CLEMENT, Sup't.

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$6 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 23 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr. Agent.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

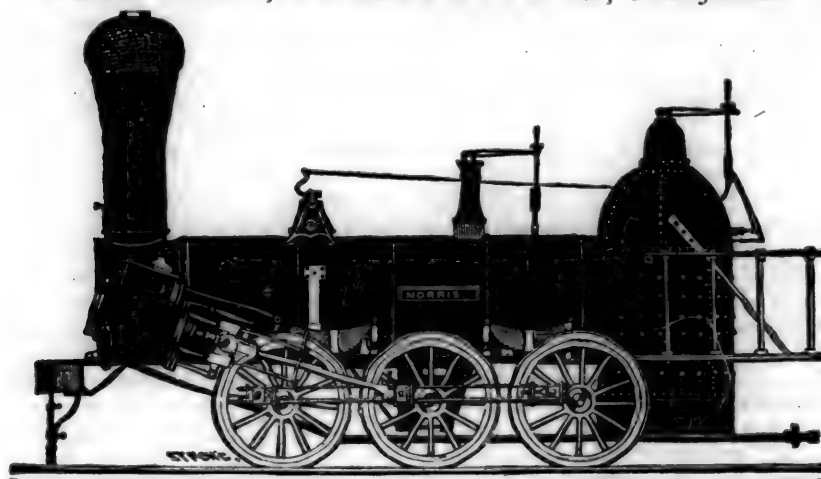
**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of.

The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works, 1y

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK, F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 36

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** 4 South Front St., Philadelphia. Mar. 20th

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, trums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

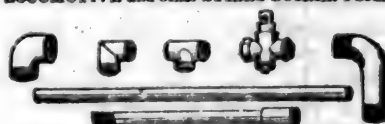
For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 13 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**



**Kennebec Railroad.**

The following article on the merits of the Androscoggin and Kennebec railroad, appeared in a late number of the Boston Daily Advertiser:

"I saw some days since an article in your paper respecting the construction of the Portland and Kennebec railroad extending from Portland up the Kennebec river to Augusta. It is well understood by some in Boston, doubtless, that there are two railroads penetrating the interior of Maine now talked of; the one above alluded to, and the Androscoggin and Kennebec railroad, extending from Danville near Lewiston, and thence through the interior of Waterville, 18 miles above Augusta on the Kennebec river. The former, with the branch to Bath, is 67 miles long, and the latter 50 miles in length. The projectors of the latter also intend to form a junction with the Atlantic and St. Lawrence road at Danville, and by some arrangement with the directors of that road, to run over it to Portland and there to connect with some road, and thence to Boston. The question will naturally arise, in which of these roads is Boston enterprize and Boston capital most interested to see constructed? Maine has been and is now one of our best customers, and what our merchants, and mechanics, and manufacturers desire, is to see new resources developed and additional capacities to exchange commodities and to purchase created: now this road from Portland upon the banks or near the Kennebec river, will give no spring to business in the interior of Maine. It will exert comparatively no influence as a means of transportation and communication any farther back from the river, than the river itself has; except the winter season.—The farmer in the interior will have no additional advantages for disposing of surplus products, and consequently no additional inducements for raising any. Nor will it tend at all to bring into use the splendid water power which the interior of Maine possesses. All the surplus products and commodities, within such distance from the river as will warrant the owner to haul them, now find their way to the river towns, and thence to Boston or elsewhere, and it is not perceived how this railroad to Augusta will tend to augment the amount. On the contrary, the road from Lewiston to Waterville, runs thro' and near to the very garden of that State.—The inhabitants of the counties of Somerset and Franklin, and the northern and western portion of the county of Kennebec, have long suffered for want of facilities to transport to a market the products of the country. The trader in many parts of that section of the State for want of those facilities which a railroad would give, cannot afford to take in exchange or purchase at remunerating prices the products of the farm, and hence there is no inducement to the farmer to raise a surplus. This railroad pursuing its course from Lewiston to Waterville, a distance from 12 to 18 miles from the river until it reaches Waterville, is destined, if constructed, to infuse new vigor into every department of industry in the region through which it goes. There is no reason except the want of facilities for trans-

portation, why Winthrop, Redfield, Farmington, and Waterville, should not do as profitable and extensive business in trade as Gardiner, Hallowell, and Augusta. They are surrounded by a dense population, and in the midst of a territory incomparably more fertile and productive. It is this road then which the business men of Boston should look to as opening to them new capacities to purchase, and increased ability to become consumers. Nor let it be said that all the benefits, resulting from opening this road through this thickly settled and fertile region, will inure to Portland. The people of that section of that State, as well as of the other portions of it, look to Boston as the centre of trade, and will continue so to do so long as Boston can hold out superior inducements. It is known to your correspondent that liberal arrangements have already been made with the Atlantic and St. Lawrence road, whereby freight and passengers shall go from their road upon some road leading to Boston with the same facilities and ease as they will go from any other road coming to Portland from the interior of Maine. Such being the case, Boston and Portland are left, so far as these railroads are concerned, fairly to compete with each other in securing to themselves the products of the interior of Maine. And this is right, and all that the merchants of either city should expect. Both will doubtless be greatly benefited by its being opened, and the people in the interior more so for having the advantage of both markets. If our views of the effect of these two roads upon the growth, enterprize and productive energies of Maine are correct, most manifest is it that Boston merchants and Boston enterprize has infinitely more to hope from the construction of the interior road through Maine than from that along the river. At an early day the inquiry in which road is Boston capital most interested, will be considered.

**Railroads on the Continent of Europe.**

The same article in the Edinburgh Review from which we have gleaned some interesting statistics relative to English railroads, contains others relating to those on the continent of Europe. We condense them, hoping that they may not be found uninteresting or useless.

The little kingdom of Belgium was the first that followed the example of England, and turned its attention to the construction of railroads. This it did, in order that its commerce might not suffer from the effects of the revolution of 1830, which, by sundering the union of Belgium and Holland, cut off the former from the use of the mouths of the Scheldt. Four great lines were built. The first, or eastern line, running from Malines to Cologne, by Louvaine, Tullemont, Laudon, Waremmé, Liege, and Verviers, with a branch to St. Trond, is 91 miles in length. The western line, from Malines to the sea on the north, by the Termond, Ghent, Bruges and Ostend, with a branch from Ghent to the French frontier by Menin and Courtrai, is 126 miles in length. The northern line, from Malines to Antwerp, with a branch to Lievre, is 16 miles long; and the southern, to the French frontier, by Brussels and Mons,

with a branch to Charleroi and Namur, is 115 miles long. The whole number of miles is 348. The first road was opened in 1837, and was quickly followed by that of the others. The effect on travel on some portions of these lines, was astounding. Between Brussels and Antwerp, the number of passengers increased from 75,000 per annum, to one million! The cost of the Belgian roads, has been about \$50,000 per mile. Low fares and low rates for transportation of merchandize exist; as the roads were intended by government, not as sources of profit, but for the accommodation of the whole public. Four per cent. is cleared, which is all that is desired, as it equals the interest of the capital sunk. The facts in the history of these roads, agree with those derived from that of the British roads, in respect to short travel, etc. The arrangements for the conveyance of all kinds of merchandize, at the lowest possible rates, are most admirable, and the consequence is seen in the enormous increase of traffic. "In 1841, before they were matured," says our authority, "the total receipts for merchandize were £19,000. In 1841, its amount was £177,800! Before the establishment of the eastern branch of the railway, the highest amount of heavy goods sent to the German frontier, by the old conveyance, was 12,000 tons; in 1844, the amount transported was 67,500 tons! In 1842, before the railway took the traffic, the amount of light goods was 194,000 tons; in 1844, it exceeded 500,000 tons!" Well may the reviewer say, that considered relatively to the population and territory of Belgium, this is the greatest work of public utility which any European state has executed in our times. To afford to inferior places a direct participation in the benefits of the system, private companies, under the authority of the state, have undertaken the construction of about 200 miles of railroad, the lines thus made to communicate between those towns and the great lines.

France has at length waked up from that unaccountable stupidity on the subject of railroads, in which she, the first of scientific countries, so long indulged. A few small lines were built to 1842, in which year the government came to the conclusion to plan and execute a system of railroads. "It was determined, that from Paris, as a centre, main branch lines should issue, to be directed to those points of the frontier, by land and sea, that should best serve the purposes of foreign commerce; and that the demands of the interior should be consulted in the routes which these lines should follow in passing through it, and in the various ramifications which they should throw off." Six lines were planned. The first goes northward to Belgium, with the roads of which country it will unite near Lille and Valenciennes, having branches to Amiens and Lille, and communicating with the British Channel at Dunkirk, Boulogne, and Calais—"thus opening a rapid and easy communication with England, and affording a means of travel with the fifth commercial port, and the great granary of the northern section of the kingdom." The

second line goes from Paris southward, by the way of Orleans, Tours, Poitiers, Angoulême, and Bordeaux, having its southern terminus at Bayonne, its object being to aid the trade with Spain. From this road, branches are thrown off to Nantes and Vierzoon. The third line takes an eastern course, through Champagne and Lorraine, to Strasbourg and Bale, and having a branch to Metz. It will unite with the German railroads. The fourth proceeds from Paris to Brest, through Rennes, and is to strike the Atlantic shore in that quarter. Another line is to run south, and strike the base of the Pyrenees, opening a route to the centre of Spain, via Saragossa. The sixth line goes to Rouen, and has branches to Dieppe and Havre.—Two other lines have been projected, "proceeding from Marseilles, one leading to the Atlantic at Bordeaux, and the other communicating by Lyons with Switzerland, Alsace, and northern Germany; and running into the eastern line from Paris, at Dijon." The entire length of these roads and their branches will be 3335; and judging from the cost of what had been completed at the close of 1844, the entire cost would be not quite \$100,000 per mile, or for the whole about \$330,000,000. About 1000 miles were completed at the end of last year. The undertaking is governmental, and the system is made with reference to the comfort, convenience and economy of the people. Fares are low, and the third class cars are, in all respects, better in France, than the second class are in England. "They order these things better in France," can be said now, though in reference to widely different matters, quite as correctly as in the days of Stern. Until the whole undertaking is completed, it cannot be possible to say what will be the profits on a railway investment in France on a large scale; but thus far it has averaged, in these lines, 4½ per cent. Short travel is the most productive.

Austria has entered upon railroad construction with a zeal we had hardly expected in a state so wedded to old uses and abuses, and so averse to every kind of improvement. From Vienna run four great lines; one to the south, through Gratz and Laybach, to Trieste; one to the north, via Prague, to the line of Saxony, having "a branch to form a union by Olmutz with the great line through Prussian Silesia;" one to the east, connecting Hungary with the capital, running by Pseth and Debreczin; and the fourth to Munich, the capital of Bavaria, by Lintz. "By these," says the reviewer, "a profitable communication will be opened with those rich and hitherto inaccessible tracts of eastern Europe intersected by the valley of the Danube—possessing vast pasturages, regions fertile in wheat, maize, and rice, flourishing plantations of hemp and tobacco, and extensive vineyards." Austria has other roads in view, the construction of which will unite the northern seas with the Adriatic. In her Italian possessions, Austria has under way a railroad about 200 miles long, connecting Milan with Venice. From the latter city, there is excellent steam navigation to Trieste,

where terminates the great northern and southern road. When completed, these roads will number 1935 miles. Prussia has not been behind Austria in this species of noble enterprize. She has projected railroads amounting to 1063 miles, the greater part of which has been completed. Lines run from Berlin, striking Cologne, on the Rhine, and Frankfort-on-the-Main, the first connecting with the Belgian roads, and the second with those of France. Another line takes an eastern direction, going towards Russia, by the way of Frankfort-on-the-Oder, Posen, Dantzic, and Kenigsberg. One goes to Hamburg, from Berlin, another to Stettin, and a third to Silesia, in which province it will communicate with the Austrian northern line, and make the connection between the Mediterranean and the Baltic and the northern waters generally, a somewhat more easy matter than it was in the most glorious days of the Hanseatic League. Some other lines are under contemplation, among which are one direct from Berlin to Dresden, and another from Lippstadt to Cassel. The east or the Prussian lines, so far as ascertained, has been about \$43,000 per mile; average dividends, 5½ per cent. Bavaria has under way three great lines, one connecting the Prusso-Saxon line at Hof with Lindau, on the Lake of Constance, by the way of Augsburg, Donauwörth, Nuremberg, and Bamberg. The second line runs east and west, connecting with the Austrian roads on one side, and with those of Wirtemberg and Baden on the other. The third runs from Bamberg to Frankfort-on-the-Main, where it connects with several lines which centre at that point. Besides these great undertakings of the leading Germanic powers, the minor states of that country have done much for the same purpose—Saxony, Hesse, Hanover, Brunswick, Mecklenburg, and the Hanse House, have planned about 1700 miles in all, several hundred of which are already in working order. These latter roads are all well culminated to increase the usefulness of the lines of Austria, Russia, and Bavaria; and it may be remarked, that although these several enterprises have been undertaken by different nations, yet, "partly from the physical character of the countries, and partly from the distribution of the population and seats of industry, and a consequent harmony of interests, they have of themselves assumed a considerable uniformity of plan; and the Germanic states will, ere long, be overspread by one of the most magnificent systems of interior communication of which Europe can afford an example." It would afford us much pleasure to go more into detail on this great system, so creditable to the German people and governments, showing its effects on commerce, travel, etc., but our limits forbid. The whole number of miles, built, under way, or planned, is 7600, England, the cost of which will be not far from \$330,000,000, averaging about \$45,000,000 per mile. The effect on the price of labor has been excellent, causing its rise about 33 per cent. Eight millions of laborers were employed on the roads in 1844.

Russia has under way, one railroad from

St. Petersburg to Cracow, via Warsaw, which is to unite with the German lines. A second connects St. Petersburg with Moscow; the third will commence at the terminus of the Austrian railroad in Hungary, and proceed to Odessa, the great emporium of Southern Russia, and the chief port on the Black Sea. A merchandize line is to connect the rivers Dunna and Volga. These roads will be in length 1600 miles. The Edinburg says nothing of the continuation of the great Russian road from St. Petersburg to Moscow; but we have seen it stated by other authorities, that it is the intention of the Russian government to continue that road from Moscow to Astrachan, on the Caspian Sea—an idea almost worthy to compare with that of opening a road from the Western Lakes to the Pacific.

In Holland, a railroad has been made from Amsterdam to Rotterdam, 53 miles, intended to be a double track. A road has been constructed from Amsterdam to the Prussian frontier, and opened to Arnheim, 58 miles. The first road cost less than \$25,000 per mile; the second about \$70,000. Other lines are to be constructed on quite a large scale, by private companies, but under the superintendence of government.

In the Italian States, Spain, Portugal, Sweden, etc., nothing, or next to nothing, has yet been done in the way of constructing railroads, though it is probable that all of them will soon become alive to the necessity of entering upon the work. The liberal and enterprising character of the new Roman pontiff is favorable to the prospects of Italy; and perhaps, ere many years have elapsed, pilgrims to the eternal city, may course at the rate of 20 or 30 miles an hour over the Flaminian and Appian ways.

From the Pittsburg Gazette.  
The Great Central Railroad from Philadelphia to St. Louis.

The object of my lectures was to present to the people of Pittsburg a plan for the extension of the Central railroad in a direct line to St. Louis, through the States of Ohio, Indiana and Illinois, thereby securing the trade of the west, which naturally ought to flow through Pennsylvania, but is now diverted to the Lakes and New York. After reviewing the merits of the leading routes proposed or in operation, from the seaboard to the west, we arrive at the conclusion that the Pennsylvania route is the best, for travel as well as freight. But it is considered necessary that the whole line from Philadelphia to St. Louis, which will not exceed 1000 miles in length, should form a continuous railroad without any transshipment. This line is to be built in the most substantial manner, and calculated for an annual business of 300,000 through passengers, and 250,000 tons of goods. The idea is, to form a grand trunk line of 1000 miles long, capable of accommodating the whole of the States west of Pittsburg. This trunk line will intersect all the improvements which traverse the western States in a north and south direction, connecting the lakes with the Ohio river. In place of establishing independent lines from here to Cleveland, Canton, or Co-



lumbus, one single central line is proposed, which, from its directness, good construction and management, will offer such great facilities of conveyance, that the different sections of the west, on both sides of this great thoroughfare, will find it their interest to form numerous lateral or branch roads. By the construction of a direct road to St. Louis, we will therefore lay the foundation for an immense system of railroad, all directed to Pittsburgh. Has a more magnificent scene ever been presented to our citizens? Is there any question before the public now which is of greater importance than the contemplated railroad connection with the east and west?

The whole success of this enterprize will depend upon the good sense of the people of Pittsburgh. Let us act as rational men, and divest ourselves of all feeling and prejudicial impressions. It is not only for ourselves who are interested in this matter; we only form the connecting link between the east and west. Our true interest is, to place ourselves in the best position towards both; it is impossible, and would be impolitic, to maintain a solitary stand. St. Louis, Cincinnati and the whole west, are directing their efforts towards New York, not by way of Pittsburgh, but by the lakes. The west feels the want of a continuous railroad to the seaboard.—The nearest, best, and cheapest route to Philadelphia, as well as New York, will be offered by the great Central railroad, passing through Pittsburgh, not stopping here, but only passing through. We must remember, that the great market for the west is in the east; we should remember, therefore, carefully to avoid throwing any obstacles in the way of this commerce. For this reason, there should be no transshipment from St. Louis to Philadelphia. The more facilities we offer, the greater will be the travel through our city. Whatever can be manufactured and purchased here, as cheap as in the east, will of course be ordered here. The western merchant will travel no further than necessary.

By establishing a road from here west, independent of the Pennsylvania road, we should injure the whole route, ourselves as well as the east and west: we should thereby give an undue advantage to the New York as well as the Virginia route.

On mature reflection, it will appear that on this question our interests are identical with those of the east and west.

As the travel on the great Central road will be very great, it is necessary to construct it substantially; a cheap and poorly constructed road will not attract much business, travellers will shun it, and keep out of its way. Moving at the rate of 25 to 30 miles per hour, requires a good track, and machinery.

The true interest of Pittsburgh is, to aid in the construction of a great road from the east to the far west, and to render this road capable of transporting cheaper and quicker than any other road. But this cannot be accomplished by dividing the business of the west between Philadelphia and Baltimore. To succeed with a good road, and to be enabled to transport at a low rate, we must do a heavy business—this is an established prin-

ciple in railroading. For the next quarter of a century, we will not have business enough to support two roads; the time, however, will come when the stock of the Connellsville railroad will be good, and this road will be wanted. The construction of that road at the present period, however, would be a highly injurious movement. Philadelphia will and must come here, there is no other way left for that city. We will bid them welcome! If the Baltimoreans insist upon coming here at their own expense, let them come, we shall not object. But we have no spare resources to aid them now. Our primary object is, and must be, to apply all our means and resources towards an early construction of the Central road west.

The shortest route to St. Louis, appears to be by way of Columbus and Indiana. The question as to the best route must, however, remain open, until decided by extensive surveys, under the charge of competent engineers.

Philadelphia will employ herself in perfecting the surveys here during this season. Let Pittsburgh and St. Louis join hands and commence the western surveys. No application need be made for charters, until the main direction of the route is determined on. Or, if charters are granted, they must allow sufficient latitude for the choice of routes.

It is important that negotiations between Pittsburgh and St. Louis should be opened at an early day, so that the great route may be decided on within the present year. This great improvement will, I have no doubt, influence the location of numerous railroads which have been projected throughout the western States; and it rests with us, to project and carry out one grand and uniform system, in place of running wild, in all directions, and without any good object in view.

JOHN A. ROEBLING.

#### Western Magnetic Telegraph.

The following letter in relation to the Southwestern Telegraph, appears in a late number of the Cincinnati Gazette, from E. CASE, Esq., which will explain the numerous stories which have been going the rounds of the press, for the last few weeks. Mr. Case says:—

Various rumors being in circulation respecting the formation of a company, or of companies, to connect this city with Washington, Baltimore, Philadelphia, New York, Boston, etc., via Wheeling and Pittsburgh, and with New Orleans and St. Louis, via Louisville, the position of the undersigned renders it proper for him to state such facts in regard to the extension of the telegraph line as are of immediate interest to the people of the Mississippi Valley.

He has obtained a legal transfer from the patentees of their right to construct a line or lines of magnetic telegraph, connecting the cities of Washington, Baltimore, and Philadelphia westward with Harrisburg, Pittsburgh, Cumberland, Wheeling, via Columbus to Cincinnati, Louisville, Nashville, etc., to N. Orleans, and from Louisville to St. Louis, and from Columbus to Cleveland.

He is authorized to form a company (and will proceed to do immediately) to be known

as "The Western Telegraph Company," for the purpose of raising the necessary funds to connect the above-named places, and all intermediate points of sufficient importance to require an office. The cost of construction, including batteries, and all things necessary for working Morse's Electro Magnetic Telegraph, is not to exceed \$125 per mile for one wire, and \$35 per mile for each additional wire. The whole distance will fall short of two thousand miles, and consequently the entire cost will be less than \$250,000—a very small sum for such an important work.

A line of telegraph is already built and in operation from Philadelphia to Pittsburg, and provision is made in my articles of agreement with the patentees to allow the stockholders, by subscribing their names to the agreement of the Western Telegraph company to become stockholders in it, upon the same terms and conditions of original subscribers. The patentees contend (and I have no doubt correctly) that the line from Pittsburgh to Philadelphia has been built in violation of their rights, and without their authority; and hence it will be treated by them, and those acting under their legal authority, as spurious, unless the stockholders become absorbed in the Western Telegraph company, and till they do become so absorbed.

My agreement with the patentees stipulates for the completion of the contemplated work within two years from the 1st of January, 1847; but if no unforeseen obstacles should present themselves, it is my intention to have it done at a much earlier day.

As soon as a proper organization is made, persons, duly authorized to act, will visit the different cities and towns upon the proposed lines, to solicit their friendly co-operation in raising a share of the necessary funds. Pittsburgh, New Orleans and St. Louis being three of the most important points, and most deeply interested, will not, it is presumed, be a whit behind Cincinnati in the substantial promotion of this great work.

The interruptions on the eastern lines will be avoided on this line, by using iron wire instead of copper, and of three times the size, and nine times the strength, and by using great care in the insulation.

In fact, the frail copper wire used upon the eastern lines when first constructed, is now being replaced by a substantial iron cord, or wire of sufficient strength to resist the storms, and especially the ice, that have heretofore broken it to pieces, and interrupted communication.

The productiveness of capital invested in important lines of telegraph, and their great public utility, are now no longer debatable questions; and it will be but a brief period before communications will pass with the speed of lightning over and through the whole extent of our vast territory, from north to south, from east to west, cementing more and more strongly the bonds of union, and holding aloft, with firmer nerves and stronger grip, the star spangled banner, the glory of American freemen, and the admiration of millions throughout the world.

ELIHALET CASE, JR.

## New York Railroad Statistics.

As we have not yet received the Comptroller's report, we are indebted to the *Albany Evening Journal* for the following synopsis of the railroad statistics of New York State, for the last year.

## MOHAWK AND HUDSON RAILROAD.

Length of road in operation, 16 miles and 4837 ft.  
Cost of construction ..... \$1,461,152 91  
Paid for rebuilding 2 engines and 34 freight cars ..... 11,814 04

\$1,472,966 95

Interest which accrued in  
1846 ..... \$25,019 69  
Do. do. in 1845.. 3,094 02

\$28,113 71

Repairing and operating the road in 1846,  
\$41,776 84

Income from 174,653 passengers ..... \$92,191 67  
" " Local and western freight. 18,321 59  
" " Mail contract ..... 1,950 09  
" " Rents ..... 1,390 82

\$113,857 08

Rec'd from the sale of houses,  
land and materials ..... \$8,978 64  
Received from bonds of 1845. 3,000 00

\$11,978 64

Number of locomotives 6.

## UTICA AND SCHENECTADY RAILROAD.

Length of road 78 miles. Cost of construction  
\$2,189,505 10

Income from passengers ..... \$347,535 51  
" " Freight ..... 65,296 57  
" " United States mail ..... 5,850 00  
" " Other sources ..... 9,713 90

\$428,395 98

Expenses of running the road ..... \$167,820 82  
" for engines, constructing and  
grading ..... 75,609 70  
Amount of dividends ..... 160,000 00

Total expenses and dividends ..... \$403,430 52  
Number of locomotive engines 15.

## SYRACUSE AND UTICA RAILROAD.

Length of road 53 miles.  
Cost of construction ..... \$1,128,940 24  
" " less depreciated prop'ty. 30,000 00

\$1,098,940 24

Receipts from 103,798½ thro' pass'gers. 207,597 00  
" " 51,481 way passengers. 22,111 56  
" " transportation of freight. 19,623 50  
" " transportation U. S. M. 6,289 75  
" " miscel. sources ..... 2,015 41

\$357,637 22

Expenses for repairing, operating and  
running the road, including amount  
paid for debt and new cars ..... 124,932 48  
Amount paid for new trench ..... 38,241 12  
do. do. permanent fixtures ..... 8,017 56

\$171,191 19

Expenses on account of construction for  
land ..... 12,112 73  
Dividends paid February 15 ..... 40,000 00  
Dividends paid August 15 ..... 40,000 00  
Number of locomotives 9.

## AUBURN AND SYRACUSE RAILROAD.

Length of road 26 miles.  
Cost of construction ..... \$676,239 02  
Expended in construction in 1846 ..... 3,947 50  
Interest ..... 105,037 38

\$784,223 90

Income from 105,889½ passengers ..... 98,051 71  
do. do. freight ..... 16,886 32  
do. do. United States mail ..... 4,050 00  
do. do. Incidental ..... 50 00

\$119,038 93

Expense of repairing and running the  
road ..... 46,164 08  
Amount of dividends ..... 32,000 00

## AUBURN AND ROCHESTER RAILROAD.

Length of road, 78 miles.  
Cost of construction to Jan. 1846 ..... \$1,832,045 18  
Cost of expenditures in 1840 ..... 32,999 28

\$1,865,044 46

Receipts from 62,218 thro' pass'gers... 169,006 98  
Receipts from 80,037 way ..... 84,066 23  
Receipts from freight ..... 20,201 76  
Receipts from U. S. mail and other  
sources ..... 16,895 58

\$290,170 55

Expenses for repairs and running the  
road ..... 110,352 24  
Dividends paid 1st February, 1846... \$56,000 00  
Dividends paid 1st August, 1846 ..... 56,000 00

Amount of dividends paid ..... \$112,000 00

## TONAWANDA RAILROAD.

Length of road, 43½ miles.  
Cost of construction ..... 754,063 28  
Expended in " 1846 ..... 2,507 91

\$753,555 19

Receipts from 92,387½ passengers ..... 111,583 09  
do. do. freight ..... 23,779 97  
do. do. U. S. mail ..... 6,347 25  
do. do. storage ..... 2,107 89

\$143,818 20

Receipts from sinking fund and N. York  
Life Insurance and Trust co. .... 5,333 33  
Receipts from the sale of iron, etc. .... 3,161 65  
do. do. cars sold ..... 300 00  
do. do. interest received ..... 447 91

\$9,242 80

Expense of construction, repairs and run-  
ning the road ..... 89,534 44

## ATTICA AND BUFFALO RAILROAD.

Length of road, 31 miles 26 chains.  
Length of branch road about 80 chains.  
Cost of construction ..... \$306,704 52  
Cost of engine and cars ..... 46,104 33

\$354,808 85

Receipts from 87,633 ..... 72,405 55  
do. do. freight ..... 8,185 64  
do. do. U. S. mail ..... 4,800 00  
do. do. sale of stock ..... 877 50  
do. do. various sources ..... 225 37

\$86,494 06

Expense of construction in 1846 ..... 3,446 63  
do. engines and cars ..... 9,711 80  
do. running the road ..... 33,564 98

\$46,723 41

Dividends, February 1, 1846 ..... 13,546 00  
Dividends, August 1, 1846 ..... 16,950 00

Amount of dividends ..... \$30,496 00

## SCHENECTADY AND TROY RAILROAD.

Length of road, 20½ miles.  
Cost of construction to 1st Jan. 1846... \$641,540 02  
Expended for do. in 1846 ..... 2,007 54

\$643,547 56

Receipts for 57,793 thro' passengers... 27,997 96  
do. do. 4,996 way passengers ..... 1,499 19  
do. do. freight ..... 6,720 88  
do. do. mail and other sources ..... 570 00

\$36,788 03

Expenses of running the road ..... 31,545 30  
No dividends

## ALBANY AND WEST STOCKBRIDGE RAILROAD.

Length of road in operation, 38½ miles.  
Cost of construction ..... \$1,777,019 57

Number of thro' passengers ..... 76,412  
do. way passengers ..... 27,914½  
Expense of road, including ferry boat  
and dock in the city of Albany, paid  
by lessees ..... \$17,500 62

There is no income. The lessees pay the inter-  
est on the bonds of the city of Albany, which am't  
to \$1,000, as rent.

## RENSSELAER AND SARATOGA RAILROAD.

Length of road, 25 miles.  
Cost of construction ..... \$475,801 10  
Receipts from 18,477 thro' passengers... 18,856 63  
do. from 33,930 way passengers... 13,510 03  
do. from freight ..... 8,183 61  
do. from U. S. mail ..... 524 55  
do. from bridge toll ..... 9,210 54  
do. from other sources ..... 243 40

\$50,534 07

Expenses for repairing and running the  
road ..... 38,639 48  
Expenses toll bridge ..... 2,829 75  
do. dividends ..... 9,000 00

\$50,469 23

Number of locomotive engines, 2

## CAYUGA AND SUSQUEHANNA RAILROAD.

Rec'ts of passengers and transportation... \$17,157 99  
Expenses of running the road ..... 6,801 44  
do. repairs on road ..... 5,569 54  
do. repairs of cars, etc. .... 2,193 58

\$14,557 56

## SARATOGA AND SCHENECTADY RAILROAD.

Length of road, 23 miles  
Cost of construction ..... \$300,000 00  
Receipts from 17,150 through pass'gers... 18,699 99  
do. from 18,827 way passengers ..... 8,750 01  
do. from freight ..... 4,668 74

\$33,118 74

Expenses of repairing and running the  
road ..... 26,358 41  
Dividends in January, 1846 ..... 9,000 00  
do. in December, 1846 ..... 9,000 00

\$44,358 41

## NEW YORK AND ERIE RAILROAD.

The receipts of the company from all  
sources ..... \$1,160,734 68  
Expenses of construction, repairs and  
running the road for the past year.. 917,635 51

Balance unexpended on the 1st Jan... \$343,099 17

## TABULAR STATEMENT.

Number of miles in operation, 62.  
Cost of construction (53 miles including  
pier) ..... 2,084,408 25  
Expended on 9 miles previous to 1846: 183,997 39  
Expended on construction in 1846 ..... 292,689 60

2,567,018 55

Expended for repairing and running the  
road and ferry expenses ..... 193,173 97  
Receipts from through passengers ..... 19,637 87  
do. from way passengers ..... 45,116 86  
do. from freight and U. S. mail.. 190,761 75

\$185,516 48

Number of locomotives 9.

## Fairly Begun.

It is with more than ordinary satisfaction that we  
announce to our readers to-day, that the subscription  
of the City of Philadelphia to the CENTRAL RAIL-  
ROAD is completed—more than the required three  
millions of stock having been taken in this city  
alone, exclusive of aid from the interior. The first  
instalment on this subscription was on Tuesday  
last paid in, says the *Pennsylvanian*, and certified  
by the commissioners. This gratifying fact "indi-  
cates not only a united public opinion on this sub-  
ject, in this city, and a generous disposition to urge  
forward the great work alluded to; but it proves  
also that the success of the Central railroad is placed  
beyond all doubt."

*Cornish Steam Engines.*—The number of pumping  
engines reported for the month of Dec. is 24—the  
quantity of coals consumed being 1471 tons, lifting,  
in the aggregate, 14,000,000 tons of water, 10 fath-  
oms high—the average duty of the whole is, there-  
fore, 53,000,000 lbs. lifted one foot high by the con-  
sumption of a bushel of coal.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

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Saturday, February 27, 1847.

#### Mr. Roebing's Lectures.

In our last number we commenced the publication of *Mr. Roebing's Lectures*, originally written for the *Railroad Journal*—and delivered before the "Board of Trade" at Pittsburg—a short time since. We continue the article to-day—and in our next shall conclude the subject.

It needs no particular notice from us, for the name of the writer is sufficient commendation for its earnest perusal; yet we cannot allow this opportunity to pass, without remarking that the views of Mr. Roebing, in relation to this great iron chain of intercommunication between Philadelphia and St. Louis, meet our heartiest approbation—and we shall indeed be happy to know that men of means may be found (as we believe they will be, most readily,) who will step forward and further this important and promising undertaking.

The "Lectures" are written in a terse and excellent style, and the argument is convincing. We would merely add, that we feel under obligations to the able author for his communication—and we commend the article to the attentive consideration of the readers of the Journal, and especially to those residing in Philadelphia, Pittsburg and St. Louis.

We have thought proper to print a large edition of the entire article in pamphlet form—which will be forwarded to every section of the country. The project is an immense one, but the plan is perfectly feasible, and would, we have no doubt, if consummated, prove a most profitable undertaking.

#### A few Thoughts on Western Commerce.

DE BOW—in the last number of his "Commercial Review, for the South and West,"—has a well written, and very logical article, by a contributor, upon the contest which is now going on (and which must be one of the highest future importance,) between the East and West, for the traffic of the Mississippi Valley. We have perused this article with attention, and but for its great length, we should be happy to place it, entire, before our readers. The ground taken by the writer is, that the great and growing commerce of the Western country has now become of such vast importance, that a fierce rivalry has sprung up, and is destined to be carried on with determined vigor, whether the trade of that section shall be thrown into New Orleans, or given to the Atlantic cities. Whether the "Crescent City" shall continue to receive the benefits of the traffic of the Great West, by way of the Mississippi River, or whether Boston, New York, Philadelphia, and Baltimore, shall monopolize it?

The activity now prevailing in the Western States, but more especially in Pennsylvania, in reference to railroads leading westward, it seems, has aroused

the jealousy of our brethren in New Orleans—and the question may be very appropriately asked—if the contest for this traffic is not to be decided in after years, "why all this vast expenditure of money in building railroads, digging canals, etc." This is the point to be decided. The mightiest energies of the East and North-East must be exerted to protect and maintain what they now hold by reason of their exertions in the early history of railroads and canals. The position held towards the West, by the States of Pennsylvania, New York, and Massachusetts, by their existing means of communication, secures to those States the preference, at this time; and if the contemplated internal improvements of Pennsylvania are carried out successfully, there can be no competition with her interests (in a general view) so far as the trade of Ohio, and the country bordering on the lower Lakes, are concerned.

The writer of the article to which we have thus briefly alluded, is desirous of impressing the fact upon the minds of the citizens of New Orleans, that perishable property—as flour, corn, wheat, etc., suffers very materially, after shipment upon the Mississippi River, from injuries to which all produce is liable after reaching the New Orleans warehouses—from expenses incurred in sending it forward from the West to, or by way of New Orleans, when intended for shipment thence, abroad or coastwise—from the risks of the climate—from want of conveniences for storage—from injury occasioned by the muddy streets and docks—and from the risks of snags, etc., upon the river, the increased rates of insurance consequent, etc., etc. All these disadvantages are noted under separate heads—and an appeal is made to the community to come forward and devise means to overcome all these difficulties—and for why? Because there is an evident determination to establish a railroad communication direct from the Ohio river to the Atlantic, and a fair prospect of a continuous chain of road from St. Louis (or some point lower, even, on the river,) to the Atlantic coast!

New Orleans is a great city; but the immense trade which has been carried on between the East and the West—via New Orleans, must, in the natural progress of events, become a matter too great to be turned away from channels (though "artificial") which in these days of internal improvements, offer so many powerful and weighty advantages, as those which present themselves in the competition we have spoken of. Pennsylvania, by means of her CENTRAL RAILROAD—is destined, we believe, to be benefited more largely than any other of the Eastern or Middle States, in time to come—by the traffic which must flow eastward, and which is now, and which for years has been carried on, by way of New Orleans—to the East. Let her citizens look well to this—and bear in mind that the efforts of the Empire State will be brought to bear against her, that the capitalists of the South are jealous of her exertions—and that it depends on herself to say whether or not her people shall avail of the enormous benefits which are now flowing into other channels from her lack of means to receive them! We shall turn to this subject again.

#### Railroad Reports.

We have already given place in the columns of the *Journal* to the Annual Reports of several Roads and Companies for the past year—and a few are yet in hand, which we shall publish at an early day. The usual Annual Reports of some of the great public works of the country have not yet been received by us, and we conclude that such have not yet made their reports for the year past. We shall be happy

to see them all among our files—as soon as may be—and parties interested will please take the hint.

#### English Iron Trade.

By the arrival of the CAMBERIA steamer, we are in receipt of our London and Liverpool files—from which we gather that the *Iron Trade* generally remains in about the same state as at last advices.—The market, if any change was perceptible, was not quite so brisk as last accounts reported—and for certain descriptions of pig, slightly reduced rates are quoted. Buyers have purchased freely, however, and the prices of manufactured iron continue fully as high as a month ago. Wilmer & Smith say that in Liverpool, large quantities of iron have been sold during the last month, principally for railway and other public purposes; the consumption among the machine makers in the cotton and woollen districts has been much diminished—these trades being flat. The exportation of iron has been scarcely an average, considering the amount of pressure on the money market—the claims of Ireland for relief, which must be granted on an extensive scale, and other depressing influences. The prices of iron are well supported, and we have no reason to expect any material reduction, as the makers are still well employed, and pig iron is scarce. The following are the present rates in Liverpool: No. 1 Scotch pig, £4 5; Merchant bar, £ 10; best Rolled, £10 15; Hoop, £11 5; Sheet, £12.

In the London market, the transactions in iron are on a more restricted scale, the tightness of the money market having an unfavorable influence on prices of all descriptions. In Scotch pig only a small business is reported at a further decline of 1s. to 1s 6d on last week's rates, No. 1 selling at 72s 6d to 73s, and mixed numbers 71s to 72s cash; these rates are, however, quite nominal, and it is more easy to buy than sell. Welsh and Staffordshire are quiet; last rates are barely maintained. Rails are dull, and now not more than £9 to £9 15s cash can be obtained. In foreign iron no business reported. Spelter again advanced 20s, but sales have been stopped owing to the small quantity here and the high rates asked; some business is reported at £22 to £22 5s, and for arrival at about £21 5s. Copper is very scarce and firm, but as yet no prices are fixed by the smelters. Lead and steel remain nominally the same. In the value of British tin no change has taken place, and it is very scarce, some small lots of Straits are reported this week at 98s to 98s 6d.—In other metals no change, and but little business transacted.

#### Locomotive Manufactory.

We take pleasure in calling the attention of those interested in railroad matters, to the excellent locomotive building establishment of Messrs. HINCKLEY & DRURY, Boston.

It is now about six years since they commenced building Locomotive Engines, at which time the six wheel engine, with outside connexions, (weighing about ten tons) was considered sufficient for the passenger business upon the New England roads.

In consequence of the regular increase of business on these roads, from that time to this, they have been called upon for engines of an increased capacity, equal to the calls of business; and now have orders for passenger engines, weighing twenty-two tons, called the "eight wheel engine"—inside connexions, crank axle, with four driving wheels, and a truck; which are coming into general use in that part of the country.

There were strong objections to the crank axles, when they were first brought into use, from the fre-

quent failure of the cranks; but since making some improvements, such as adding another set of drivers, and heavier crank axles, they are now considered by the managers of our northern roads, the best kind of machine in use, for the passenger business; as they can be run at a high speed, without the great lateral motion of those of the outside connexion, and consequently with less injury to the track.

The driving wheels used by Messrs. Hinckley & Drury, are nothing less than five feet in diameter for passenger engines, and they have gone as high as six feet. We learn that this house has now orders for six months to come, for at least one machine a week, and for none of less weight than sixteen tons.

The manufacturers do not pretend that their machines are superior to those manufactured elsewhere, but being in the neighborhood where those machines are used, the various Superintendents are enabled to call and dictate how they choose to have their work done—and we are happy to know that perfect satisfaction has thus far been given—where their locomotives have had a trial. We commend the house of Hinckley & Drury to the general notice of our readers.

#### Railroad Matters.

A Correspondent of Hunt's Merchants' Magazine, writes as follows:—"In your number for January, is a statement of the quantity of railroad iron now made in the United States, taken from the Pottsville Miners' Journal, in which it is stated, that the first railroad iron made in this country was in 1844, but does not mention by whom. As this is a very prominent article in our manufactures, it is desirable the date of its commencement should be accurately known. I believe the first made here, was by the Great Western Iron Company, on the Allegheny river, about 40 miles above Pittsburg; of which company, Mr. Knowles Taylor, of N. York, was the president, and principal projector. In January, 1842, this company had 200 tons railroad iron ready for delivery at Cincinnati, for a railroad in Indiana, at \$50 per ton, at which price they lost money. This company is now called the Brady's Bend Iron Works, and is entitled to the credit of making the first railroad iron ever made in the U. States."

We are happy to be informed, says the Herald, that the subscriptions to the Hudson River Railroad now reaches upwards of \$2,000,000. Over \$90,000 were obtained Friday. The chances of this great work are now favorable, and a little more assistance from our citizens will secure its construction.

The citizens of Danvers, in town meeting, 125 years to 3 days, have passed resolutions approving of the project of a railroad from that town, through Lynn and Malden to Boston.

The Danvers Courier states that the petitioners in behalf of a railroad from Salem, through Danvers and South Reading to Lowell, have secured the services of J. W. Proctor, Esq., of that town, and E. H. Derby, Esq., of Boston, as their counsel.

We learn that the Hon. George Moffat having declined the office of president of the St. Lawrence and Atlantic railroad company on account of the pressure of private business, the directors proceeded on the 23d ult. to elect the Hon. A. N. Morin, president.

The net income of the Connecticut river railroad, extending from Springfield to Greenfield, (capital \$1,000,000) during the year 1846, was \$36,494 56. The cost of operating the road has not exceeded 35 cents per mile.

The Western Railroad Directors have recently

created 1,500 new shares, under the act of March, 1845, which are offered the stockholders at par, on the 4th of March next, in the proportion of one new share to every 20 of the old. These shares are entitled to the July dividend. This addition makes the whole number of shares 35,500 at the present time. The directors have also petitioned the legislature for an increased capital of about one million and a half of dollars, to be created from time to time, as the increased business of the road may require it; making the whole future capital ten millions. Probably none of it will be created until the property is an eight per cent. stock, which it bids fair to be in the present year—the increase of receipts in the past nine weeks having been \$33,133 82.

The receipts of the Boston and Worcester road, says the Advertiser, from passengers during the past year, amounted to \$279,793, and those from transportation of merchandize, to \$260,165, making a total of the two items of \$539,958. The dividends of 4 per cent. each were paid, leaving a surplus of \$29,725 80. The number of passengers transported was 470,318; and the quantity of merchandize 179,325 tons.

The citizens of Mount Morris are taking vigorous measures for the construction of a plank road to Angelica. The Livingston (N. Y.) Whig says, the citizens of that place are ready to subscribe \$15,000, and those of Angelica an equal amount. The consummation of such an enterprise must prove of vast benefit to the village of Mount Morris. The great increase of trade it would bring, would be an ample return for the investment.

It is stated in a Dublin paper that a railroad laborer, near Armaugh, Ireland, lately won a wager of \$10 for stowing away, in "nature's bread basket," six four-penny loaves of bread, three pounds of fat bacon, and drinking all the tea from 3½ ounces of the China herb. This was the quantum appointed for him to eat at one meal; but before the gourmand was satisfied he asked for another eight-penny loaf, and demolished it, together with an additional pound and a half of bacon.

The Norwich and Worcester railroad company have contracted for a large steamer, to take the place of the ill-starred Atlantic.

Those who take ordinary care of themselves and are prudent, says an exchange, it is proved by the calculation of experience in England, stand only one chance out of half a million of meeting with any injury upon a railroad.

#### St. Lawrence and Atlantic Railroad.

A late report made to this company, at a meeting held in Montreal, gives the most cheering accounts of the prospects of this road.

The Canadian company has entered upon its part of the work with great spirit, and apparently with most reasonable expectation of early profitable results.

They have placed forty-five miles of the road under contract, and the work of grading was commenced more than a month ago.

Mr. Galt has again gone to England, where, among other commissions, he is to contract for the rails, and the expectation is expressed, that so much of the road will be opened in the course of next year.

It is said that the prospects of the route improve on both sides of the line, as the surveys are perfected.

The encouraging fact will be observed, that responsible contractors, on the Canadian road, have agreed to take twenty-five per cent. of their contracts in the stock of the road.

#### Great Central Railroad from Philadelphia to St. Louis.

BY JOHN A. ROEBLING, C. E.

Written for the Railroad Journal, and read before the Board of Trade of Pittsburg.

(Continued from page 125.)

The history of railways has already furnished a sufficient number of facts, and of reliable data, for the establishment of principles, upon which the success of railroad transportation may be safely predicated.

Railroads, like all other great mechanical structures, which are calculated for extensive operations, are necessarily very expensive in their first construction. They are to be operated at other time and labor-saving machines are. To overcome those resistances which present themselves to the movement of heavy masses, a costly and complicated machinery is required, and to be constructed very strong and durable. Economy of working grows out of the perfection of the machinery, and other means applied. The more perfect the latter are, the better the operations will succeed, and the more can be produced. But from this follows that the profitable success of mechanical operations will greatly depend upon the amount of work done. A cotton mill, for instance, with its expensive machinery, will not pay for itself when only worked four hours per day; but it may prove a valuable investment when operated twelve hours, or still better, without any interruption. The same applies to a railroad.

In order to show the rapid reduction of expense of transportation, with the increase of tonnage, I have calculated the following table, which will be found nearly correct when applied to the best American railroad. The first cost of a first rate double track road is assumed at \$50,000 per mile. The tonnage includes passenger trains as freight trains, locomotives, cars and all.

Gross tonnage.	Maintenance of road per mile per annum for total gr. tonnage.	Charge per gross ton per mile.			
		6 per cent. interest on capital of \$50,000 per mile.	Maintenance of road.	Working expenses.	Total charge.
40,000	\$ 200	Cents. 7.5	Cents. .5	Cents. .5	8.5
60,000	230	5.0	.383	.5	5.883
80,000	260	3.75	.325	.5	4.575
100,000	290	3.0	.29	.5	3.79
150,000	365	2.0	.343	.5	2.743
200,000	440	1.5	.29	.5	2.29
500,000	890	0.6	.178	.5	1.278
1,000,000	1640	0.3	.164	.5	.964
2,000,000	3140	0.15	.157	.5	.807

This table shows, conclusively, how important it is to do a large business. We see that with a business of but 40,000 gross tons annually, we have to charge 8½ cts. per gross ton per mile, to be enabled to declare a dividend of 6 per cent. upon the capital invested. But with a business of 2,000,000 gross tons, we need only charge .807 cents per ton per mile, in order to make the same dividend. The Reading Railroad is the only road in the world, the gross tonnage of which approaches 2,000,000 a year. In applying the above table to this road, we have to double the charge of interest, as the original cost of this road, including outfit, depots and all, amounts to \$100,000 per mile. This gives the total charge per ton per mile .957 cents. And as the proportion of the gross tonnage to the net tonnage on that road is nearly as 3:2, we get the expense of transportation for each ton net 1.31 cents per mile. With a business therefore of 1,333,000 tons of coal per annum, and allowing 6 per cent. interest upon the capital expended, the Reading company should be able to transport coal from Pottsville to Philadel-



phia, 100 miles, at the rate of \$1 21 per ton. Owing to the favorable grade of that road, which is descending in the direction of the traffic, the working expenses do not amount to 1 cent per gross ton per mile.\* The working expenses of one ton net of goods on the Belgian railways, are stated at 9 cents per mile. I have referred to the Reading railroad only for the sake of illustration.

On examination of the above table, we arrive at another important conclusion, viz: that to accommodate a certain amount of business, more roads than one will be injurious to the public. Two companies, in place of reducing charges, have to increase them, in order to make up for the reduction of tonnage.

The true interest of Pittsburg is, to have but one road in place of two to the seaboard. One company can afford to work to the advantage of the community at large, by making a good road in the first instance, keeping it and its machinery in good repair, running more numerous trains, more regular and faster, and all this at a lower rate of charges. Two companies would have to divide the revenue, and would therefore have to charge double for the same accommodation. *Competition may become the ruin as well as the life of business.* The rivalry of the different leading routes through the neighboring States will be quite sufficient to preserve us against the abuses of an apparent monopoly. It will be admitted, by and by, that the Connelville road, if made, will prove a drawback, instead of a benefit, to the commerce and general interests of the city of Pittsburg. With the support of the Great Central road alone, we shall be able to monopolize the western trade, in competition to the other great rival lines, *by reducing charges sufficiently low.* With two roads, however, one to Philadelphia, the other to Baltimore, and a divided business, our ability to compete will be greatly lessened.

That road will secure most business, which first shall connect with the improvements of the State of Ohio, and render them tributary. To stop at Pittsburg would therefore be a half measure. Early measures should be taken to secure a continuation to Columbus. Before I however continue my remarks, upon the comparative prospects of the Great Central, and of the Baltimore and Ohio railroad, I will refer to the Great Virginia route, projected from Richmond to Guyandotte.

This route, when constructed, will form the most direct communication between the Atlantic and the west. Both in regard to grades as well as distances this road will be able to compete successfully with any of the northern lines for a considerable portion of the southwestern trade. The charter granted to the company of the Richmond and Ohio railroad, by the Virginia legislature last winter, may be pronounced one of the most liberal and favorable in its provisions, ever granted to any company. Indeed it appears, that Virginia regards the construction of this road, as of vital importance to the future prosperity of that State, and has accordingly held out great inducements to capitalists to embark in that enterprise. This road will form the most direct route to Cincinnati, and if continued from Richmond to Norfolk, may raise the latter place to one of the first sea ports on the Atlantic coast. The fact is, that the Richmond and Ohio road will prove the most formidable rival of the Baltimore and Ohio, as it will intercept all the trade of the Ohio river below Parkersburg, and will not allow it to reach the termination of the Baltimore line. Norfolk be-

\* No allowance made for the expense of running the cars back empty.

ing located at the mouth of the Chesapeake bay, would hold out greater inducements than Baltimore as a place for shipping.

Great as the advantages of the Richmond, and of the Baltimore routes are, they cannot divert much of the traffic, which may be said to belong legitimately to the Great Central road, provided the latter be wisely directed.

Philadelphia possesses, as the terminus of the Great Central, superior advantages over Baltimore, as well as Richmond:

1. As a greater focus of capital.
2. As a greater manufacturing centre.
3. As a greater commercial point.
4. As a more populous place.
5. On account of its closer proximity to New York, the greatest seaport on the Atlantic.

The future success of the Central railroad, however, may be predicated upon the fact, that it will form the *main stem* of an immense system of railroads, canals, rivers and common roads, most of which are already in successful operation. The whole distance of railway from Philadelphia to St. Louis will not exceed 1000 miles. Now let us commence at the eastern terminus, and enumerate the extent of all the improvements which will be rendered tributary, and may be considered branches of the main trunk line.

	Miles.
Length of trunk line itself.....	1000
Harrisburg and Chambersburg railroad.....	52
Harrisburg, York and Baltimore railroad.....	110
Pittsburg branches to Cleveland and Erie.....	230
Erie Extension canal, Cross-Cut, Sandy and Beaver.....	260
Ohio canal and branches.....	334
Muskingum slackwater—about.....	80
Columbus and Cleveland railroad.....	120
Cincinnati and Sandusky.....	225
Miami canal.....	190
Whitewater canal.....	76
Madison railroad.....	85
Wabash canal and river—say.....	450
Railroads contemplated in Illinois—about.....	200
An aggregate extent of nearly 3500 miles of active lines. The above distances are to be considered only as approximate.	

A French engineer has lately recommended to his government a system of trunk and branch lines, to be adopted in place of independent lines; the same views appear to have been sustained in parliament, during the late discussions on the merits of new lines, proposed. The remarks lately made in relation to this subject by the Railway Chronicle, (See American Railroad Journal, No. 533,) are so directly bearing upon the question of the leading thoroughfares of the United States, that the attentive perusal of this article is much to be recommended.

To insure that great amount of traffic, which is necessary for the success of the Great Central road, the location of its main trunk line should be undeviating and direct in its general course; the most important towns should be touched, and its terminus should be located at the most flourishing city of the west. In proportion as facilities of travel and transportation are offered by this trunk line, will the business of the adjacent country be attracted. All interruptions and delay should be avoided. Goods shipped on board of cars at St. Louis, must be sent through without any transshipment, and vice versa. The better the above conditions are fulfilled, the more expeditious and cheaper business can be conducted. A certain amount of business is necessary to cover general expenses, as the interest upon the capital, general management, principal maintenance of road, etc., etc. Any additional traffic beyond this,

will swell the receipts of the road, without adding proportionally to its expenses.

It is only by means of a common trunk line, and numerous branches, or lateral lines of transport, that large trains can be collected, and that trains can be run more numerous on the main line. A *through* train of passengers, for instance, starts at St. Louis towards Philadelphia, running 25 miles per hour, and allowed to reach the latter place within 48 hours, including all stoppages. This train will stop, collect and distribute passengers, at Vandalia, Terre Haute, Indianapolis, Richmond, Springfield, Columbus, Salem, Steubenville, Pittsburg, Harrisburg and Lancaster. Before the train reaches Philadelphia, it will have done an immense way business, and become much enlarged. Two such trains daily, each way, will accommodate 300,000 passengers annually. Other trains may be run for the accommodation of the local travel exclusively. The business on the branch lines must be so arranged, as to correspond with that on the main line.

By applying some of the principles developed by Mr. Ellet in his *laws of trade*, and decreasing the charges on the main line, in a certain ratio, as the distance increases the attractive power of this road, by means of its numerous branch lines, can be much increased. I will, for instance, mention an item of transportation which can be made to contribute much to the receipts of this road, and would, if fairly introduced, prove of vast benefit to the east as well as to the west. Fat cattle, hogs, and sheep, can be advantageously transported from the rich prairies and cornfields of Illinois, Indiana and Ohio, by railway to Philadelphia, without losing any weight, and at a profitable rate. A fat steer, weighing 1000 pounds, is now worth in Illinois, \$10, its transportation will cost at the rate of 2 cents per ton per mile, over say 900 miles of road \$9, making its value, including attendance and fodder, say \$30 in Philadelphia, where it will sell at the rate of \$30 to \$40. The immense droves of cattle, hogs and sheep, which are now annually driven from the west to the east, at a great loss of weight, and expense of time and money, may all be conducted on this railway. Here will be, indeed, a great national saving effected, and nobody injured. There is no doubt, if this traffic was fairly established, the exportation of meat to Europe, during the fall and winter season, could be carried on very profitably. The transportation of fat cattle, on one of the Hungarian railways, for the supply of the city of Vienna, forms one of the principal sources of revenue of that road. The grand object of railways is to facilitate commerce and intercourse. It is, therefore, the duty, as well as the interest, of a railroad company, to keep this great aim constantly in view. It is plain that such magnificent results as the direct transportation of the great staples of the west, over a thousand miles of railway, cannot be attained on a poorly located and constructed railroad, or with an insufficient stock of machinery, or by subjecting it to the delay and expense of transshipment and agencies; nor can it be accomplished by taxing such an immense traffic with all the expenses which would grow out of an increase of distance, caused by a circuitous location through every village of the country. Just in proportion as the facilities of transportation to the far west will be increased, will goods be sent and received by Philadelphia, Pittsburg, the whole State of Pennsylvania, and the western States.

Instead of constructing a number of independent lines to Erie, Cleveland, Sandusky, Toledo, Chicago, Cincinnati, Indianapolis and St. Louis, the ag-

gregate distances of which would exceed 3000 miles, and of which none could attract a sufficient amount of business to maintain a first rate establishment; it is proposed to construct *one grand trunk line to St. Louis*, and make this a road of first rate capacity, capable of conducting the whole business of the west at the lowest rate of charges, and with the least delay. The formation and management of the branch lines may be left to the different sections of country where they are wanted. A controlling power will be exercised over the branches by modifying the charges on the main line, in proportion to those on the side lines.

At the risk of another repetition, I will again review some of the most prominent principles which should be observed when projecting a great system of railways over an extensive country, and then conclude my remarks on the capability of the Great Central road to compete successfully with its northern and southern rivals.

"No two roads shall be made where one can accommodate the business.

"The whole country should be divided into railway systems, with main trunk lines forming direct communication between the most important commercial towns, and lateral branches extending thro' the adjacent country, also connecting the main trunk lines.

"The main lines should be so located as to interfere as little as possible with each other.

"The main part of the travel should be accommodated by passing through the principal centres of population.

"The freight business should be attracted from the country itself, by branch lines and intersecting improvements which will discharge directly and save transshipment and commission.

"The character of the road, as to lines, grades, and superstructure, should be adapted to the magnitude of the trade; this trade should be estimated with a due regard to the future advance of population, opening of new resources, and greater extension of business generally, in consequence of the increased facilities of transportation offered.

"The expense of construction may be increased in proportion as the annual charges of transportation, etc., are thereby diminished, with due allowance for the increase of business, which may reasonably be expected, in consequence of the greater perfection and capacity of the road."

If we proceed in the location of the Great Central road, according to these principles, and secure a connection with the west, before it can be done by our rivals, we shall be certain of success. We should at once declare our intention to extend our line to St. Louis, and carry out our design vigorously. None of the neighboring routes will thereby be excluded from the west; but it would be folly to carry two main lines into the same district, thereby destroying each other, and injuring the whole community. When the Baltimore and Ohio company projected a branch to Pittsburg and the main line to Wheeling, their object was to pursue a similar route through the west, which is now here proposed. Their plan, however, was formed under the impression that a railroad through Pennsylvania was impracticable, and could never be made. But the aspect of the case is now totally changed. Pennsylvania has discovered a route as good as the Baltimore and Ohio line, and will construct a road from Philadelphia to Pittsburg without any further delay, and will have it completed long before the Baltimore and Ohio can reach the Ohio river. This will necessarily change the whole policy of the Bal-

timore and Ohio company. Will this company be bold enough to run a race for life and death, with her more powerful neighbor of the Great Central railroad? Certainly not! If the stockholders of the Baltimore and Ohio railroad are led by wise counsel, they will examine their true position, and consider well the chances which are left to them, between the Great Central route in the north, and the Richmond and Ohio in the south. Their true interest will be to pursue a course as central as possible between the two, and strike the Ohio near the mouth of the Little Kanawha, or the Muskingum. There they will be certain of securing a *portion* of the Ohio trade. By extending their road to Columbus, they will then tap the business of the Great Central road; with what success, will entirely depend upon the organization of the latter.

That company will succeed best which will provide the greatest facilities of transportation, and have the control of the main stem to St. Louis, and of its branches. The merchant of the west will soon have a choice of five great routes, all leading to the Atlantic. They may choose to go by the

Richmond and Ohio,  
Baltimore and Ohio,  
Great Central,  
New York and Erie, or  
Boston and Michigan line.

The Virginia route is not contemplated to be prosecuted further west than Guyandot. The Ohio river will then form its continuation to Cincinnati. It cannot be denied, that the prospects of this route are very flattering. A railroad from Louisville to Guyandot, by way of Frankford and Lexington, would secure to their line a large portion of the Kentucky trade. Some of the south western travel may also take the Virginia route; if the Great Central road, however, is well managed, it will offer much greater facilities to Philadelphia, as well as to New York and Boston. Excepting those passengers from the west, who are called on business to Baltimore, the great bulk of travel which passes through St. Louis and Cincinnati, will prefer the great Central route for Philadelphia, as well as for New York and Boston, as the nearest, most expeditious, and cheapest.

It is true that the Baltimore and Ohio, when connecting with the Great Central at Columbus, or some other eligible point, will have an opportunity of diverting a portion of the travel; but this can only be accomplished by offering *greater facilities*, viz: greater speed and comfort at a lower rate of charges. But how will the Baltimore and Ohio, with an inferior road, and much smaller business, be able to sustain such competition, when the additional distance and fare from Baltimore to Philadelphia is against that route, for all the travel north of Baltimore?

The Baltimore and Ohio railroad company, when reflecting on the position of their road, situated as it will be, between two powerful rival lines, will discover that their safety depends upon the creation of an independent business, rather than uncertain result of a hazardous competition. Two things are certain, there is not scope enough of country to continue the main stem of the Baltimore and Ohio, as a great trunk line west, without interfering greatly with the extensive operations of the Great Central road. Nor will that company possess sufficient influence and capital to enable it to undertake, successfully, a struggle with her more powerful rival.

It may be repeated again, which ever line shall enjoy the control of the main stem to St. Louis, will command the western travel and business. If that

control is exercised by Pennsylvania capital, the business will go by that route, and the Baltimore and Ohio connection will only form a subordinate branch.

It is not to be denied, that the river trade of the city of Pittsburg will be seriously affected by the completion of the Baltimore and Ohio railroad, as well as of the Richmond and Ohio road. The trade below Marietta will be lost. But, on the other hand, we have the prospect of being richly indemnified by the vast trade and travel which is destined to flow through that great system of improvement, of which the Great Central road will form the main trunk line. The tributaries of commerce, which from their extensive net of artificial improvements, will flow like a torrent into Pennsylvania, will not only richly cover the partial loss of an uncertain river navigation, but it will also greatly magnify the extent and operations of our manufactures.

The question may be asked, why it is not recommended to pass with the main line of the Great Central railroad through Cincinnati, the Queen of the West? The reasons are obvious. As the grand object of the trunk line is, to tap the Lake trade at its principal sources, we should greatly weaken our ability of doing so, by keeping too far South. We should thereby give the New York line an undue advantage over us, while we would gain but very little more on the South. The greater population and traffic will, for the future, be found in the *growing* regions, which are situated north of Cincinnati, or north of the 39th degree of latitude. New York and Boston are directing their efforts to these regions. The fact is, that the position of St. Louis is most too far south for the western terminus of our line. But it is highly important to reach this city, which is destined to be the greatest inland city on this continent. On the other hand, the navigation of the immense water courses of the Missouri and Mississippi, will concentrate such a vast trade at St. Louis, that the future accumulation of this traffic may equal the *aggregate* business derived from the States of Ohio, Indiana and Illinois. Cincinnati is making efforts to reach New York. We will meet it on its way and offer it a more expeditious route. The railroad now in operation from Cincinnati to Springfield, will offer as great facilities to the former city, for the use of the Central road, as could be created by passing through it. Another objection to a location through Cincinnati would be, that a portion of the St. Louis trade would be diverted to the Virginia route, by following the river from Cincinnati to Guyandot. Cincinnati, itself, would derive little additional advantage from making it a point in the main line. That city will shortly form the very centre of a great net of railways, diverging in all directions.

A location north of the proposed route, say due west of Pittsburg, would also appear objectionable for two reasons: First, it would enlarge the scope of country, for the extension of the main trunk line of the Baltimore and Ohio railroad. Secondly, it would be brought into too close a proximity with the New York line, along the southern shore of lake Erie. By pursuing, however, the route proposed, it may not be altogether improbable that the Baltimore and Ohio Company, instead of connecting with our main stem at Columbus, will prefer to pursue a direct course from Parkersburg to Cincinnati. The latter city will, of course, encourage such a plan. Baltimore will gain more by a direct connection with the Queen City, than they can accomplish by any other route. Such connection will enable them most effectually to compete successfully with the



Richmond and Ohio route. We, of course, shall be rejoiced to see the city of Baltimore and the Baltimore and Ohio railroad thrive well, if such can take place without affecting materially our own interests.

We shall not allow our policy to be governed by feelings of envy. A generous, high minded, and honorable rivalry shall prompt us in the pursuit of our enterprize—we will remember that the Great West offers room for us all!

(To be Continued.)

#### Atlantic and St. Lawrence Railroad.

The Portland Bulletin has the following intelligence concerning the progress of this work:—"Continued trains of teams heavily laden with piles and timber for abutments to protect the railroad from the influence of the sea, and for bridging, have been pouring into the city for a fortnight past. A bridge for a double track, below low water mark, is to be built from Fish Point (Mount Joy,) to India wharf, foot of India street. A contract has been made with Messrs. Seward, Merrill and George Turner for the completion of this bridge, and the building will commence immediately. The company have purchased India and Steamboat wharves, with a view, we believe, of ultimately building an immense depot in that section. The bridge to the eastward of, and running nearly parallel with Turkey's bridge, over Back Cove, is, we understand, to be built by the company.

"The second section of this road, extending from North Yarmouth to the old tavern road near Lewiston, a distance of 17 miles, is rapidly leveling before the efforts of a very large gang of hands. The dykes and culverts are nearly finished, and large sections of the grades are ready for the layer of gravel.

"Preparations are in progress for building the bridges over the Presumpscot and Royal rivers, and it is not improbable that by next Fall the cars will be running on the whole route between this city and Lewiston. The Waterville railroad enterprize seems to meet with especial favor from all quarters, with the exception of the Boston influence, which as usual is opposed to every improvement that does not concentrate in the City of Nations. The amount necessary for the organization of the company has already been subscribed, and an organization will immediately commence."

#### Lewiston and Portland Railroad.

The Portland Advertiser has a lengthy and spirited article in a late number, upon the railroad meeting which took place there on Saturday night week. The City Hall was crowded full with people, combining the substantial strength of Portland, of all classes and interests. The Mayor, E. GREELY, Esq., presided, and speeches were made by Wm. Goode-now, Esq., Judge Ware, Messrs. Jos. Adams, John Anderson, Judge Preble, R. A. L. Codman, John A. Poor and J. S. Little—each of whom, says the Advertiser, in a varied line of fact and argument, displayed and enforced the principles of science and public economy, applicable to this enterprize, and blending the whole with appeals, regarding not only the interest of Portland, but the development and advantage of the whole State, which were answered with earnest and frequent applause. A series of resolutions were passed by the meeting, from which we extract the following.

*Resolved*, That the people of Maine should take a strong and general interest in the early establishment of a central line of railroad connecting the interior of the State with the seaboard in the direction affording the nearest and best access to the principal markets.

*Resolved*, That the railroad now chartered from Lewiston to Waterville is most favorably located to form an important part of such a central line, both because it is as direct as any that can practically be adopted, and because it will reach and benefit a great variety and amount of the local productive resources of the State.

*Resolved*, That we acknowledge the generous and liberal spirit with which so large a portion of the people in the interior are seeking to unite themselves with us in this enterprize, and that Portland must not be found wanting in reciprocating an equal cordiality and effective cooperation.

*Resolved*, That the amount of \$100,000, which is expected from Portland as a subscription to this stock, is not larger than we ought to raise—and that it can be done—and must be done—and shall be done forthwith.

*Resolved*, That we acknowledge the valuable services of those of our fellow-citizens who have already moved in this enterprize, and have subscribed or procured a large part of the amount above named; and that this meeting will appoint a committee of twenty-one to go forward and procure the balance of the subscription in the shortest possible time.

#### Miscellaneous.

*Another Great Improvement in Mechanism for Speed in Printing.*—Messrs. R. Hoe & Co., of New York, have been some months past manufacturing to order, for the Public Ledger, a printing machine, of a different principle from any press hitherto used, and calculated for a rate of speed and rapidity of operation entirely in advance of any press yet invented for use on American made paper. The machine was invented by Col. R. M. Hoe, the senior partner of that extensive manufacturing house, under whose care and superintendence this one, the first and only one yet manufactured, or even ordered, has been built. It has been completed, and we were called upon last week to go to New York and view the machine in operation before having it taken down to be forwarded here. We have done so, and had the pleasure of seeing it run at the rate of about ten thousand impressions per hour. The principle is such that it can be carried up to twelve, fifteen, eighteen, and even twenty thousand impressions per hour. As far as speed alone is concerned, the principle of this invention may be said to be the acme of perfection in the art of printing, as is Morse's Electro-magnetic Telegraph in the speed of transmitting information.—*Philadelphia Ledger*.

*The Augusta Grist Mill.*—Of all the new machinery recently put in operation upon the Kennebec dam, none seems to promise more satisfactory results than the new grist mill recently erected by J. D. Emery, Esq. This mill is constructed on the most improved plan, so far as machinery is concerned, and will

contain when completed, six runs of the best quality of Burr stones, besides a cornercracker, cleansers, etc. Four runs of these stones, for the custom work, with the necessary apparatus for cleansing, bolting, etc., and a corn cracker, are now in operation. Two additional stones, designed for the manufacture of flour for the market, will be set in operation as soon as the river opens in the Spring. The machinery of this portion of the mill is of the very first quality, and will produce flour fully equal to the best now manufactured in the country. That such an establishment was demanded by the wants of the community is fully established by the fact that it has been constantly thronged with customers since it was first started. The machinery works in the most satisfactory manner. The proprietor sent us a specimen of Indian meal made from corn which had been cracked with the cobs, and then ground. From this meal we have had some of the best "Jonny cake" we ever tasted. The machinery in this mill has been put up under the superintendence of Mr. David Beedy, Jr., a skillful and intelligent millwright.—*Augusta Age*.

*New Cannon.*—Mr. Isaac Detheridge has invented a cannon of a very novel and ingenious construction, for which he has a caveat at the Patent office. It is composed of rings and rods, with screws at the ends, and can be taken apart and put together again in a few minutes. It is made entirely of wrought iron, and overcomes, it is asserted, the difficulties complained of in that species of guns. Besides which, for crossing mountains and morasses, there could not be anything more complete, as it can be taken apart and loaded on the backs of mules or packed in the ordinary baggage train. It is also as safe in firing as any other cannon: perhaps all the attention having been paid to that quality.

*Improved Carriage Spring.*—Mr. Wm. S. Thomas, of Norwich, Ct., has furnished us with a drawing and description of an ingenious and apparently excellent improvement in springs for coaches and light carriages. This improvement is not calculated to come into competition with that of Mr. Snow, described in this paper two or three weeks since, but may be preferred on light fancy coaches, etc. The elliptic spring is in this retained, with the addition of a longitudinal U spring with a peculiarly broad iron reach, constructed to accommodate the U springs, which are moreover to be occasionally supported by additional interior plates. The inventor is but an apprentice, or at least a minor, and should be encouraged to persevere in advancing improvements, and with accumulated experience will probably be enabled to introduce improvements of greater magnitude.—*N. York Farmer*.

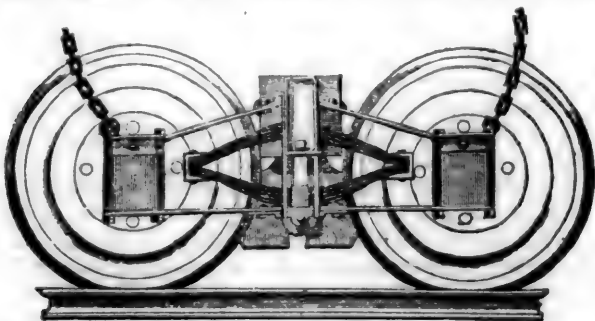
*Valuable Discovery.*—Mr. L. B. Swan, of Rochester, has discovered a new solution or exciting liquid for the galvanic battery, which saves 75 per cent in the material employed, besides a large amount of labor and attention. It has been used at the Telegraph station in that city with great success. Mr. Swan has applied for letters patent.

**Discovery of Mezzotinto.**—It is well known that many of the important discoveries in the arts and sciences, have been quite accidental, or have arisen from very trivial circumstances. The beautiful manner of finishing prints, called mezzotinto, was discovered by Prince Rupert, who, going out early one morning, observed a sentinel, at some distance from his post, very busy doing something to his piece. The Prince inquired what he was about.—The soldier replied that the dew having fallen in the night, had made his fusée rusty, and that he was scraping and cleaning it. The Prince on looking at it, was struck with something like a figure eaten into the barrel, with enumerable little holes close together, like friezed work on gold or silver, part of which the soldier had scraped away. He concluded that some contrivance might be found to cover a brass plate with such a grained ground of fine pressed holes, which would undoubtedly give an impression to all black, and by scraping away proper parts, the smooth superficies would leave the rest of the paper white. Communicating this idea to a painter, they made several experiments and at last invented a steel roller, cut with tools to make teeth like a file or rasp, with projecting points, which produced the black ground, which being scraped away and diminished at pleasure, left the gradations of light.

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Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 4 inch Flat Punched Rails, 20 ft. long.  
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York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address  
**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

**NOTICE TO RAILROAD CONTRACTORS.**  
Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.  
**J. W. BROOKS, Supt. & Eng.**  
Detroit, January 5, 1847.

**RAILWAY IRON.—THE BEST QUALITY**  
Of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
**DAVIS, BROOKS & CO.,**  
Jan. 2. [11] 68 Broad St., New York.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.  
**THOMAS & EDMUND GEORGE,**  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10:39

**NICOLL'S PATENT SAFETY SWITCH**  
for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
ja45 Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S**  
New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR**  
the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [1y4]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

**New York, May 4, 1846. W. H. CALKINS, and Others.**  
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Supt of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

**Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,**  
Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**  
**Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.**  
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

**Long Island Railroad Depot, [Signed,] JOHN LEACH,**  
**Jamaica November 12, 1845. } 1y19 Sup't Motive Power.**



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 31st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street  
Charleston, S. C.

16 d

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Frastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

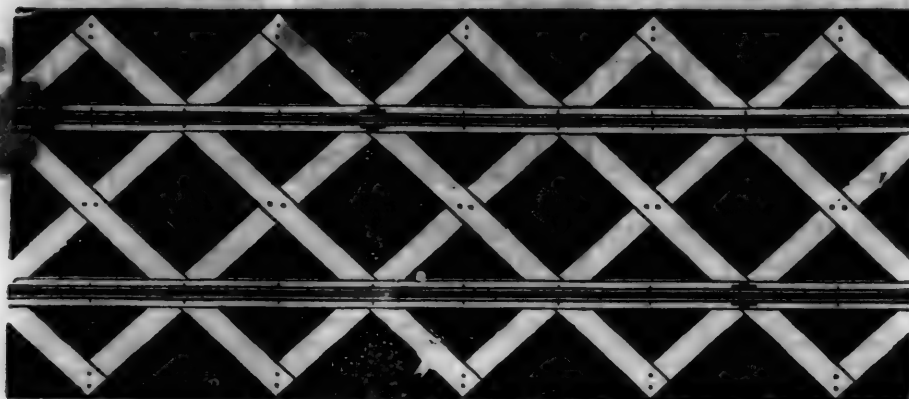
ROGERS, KETCHUM & GROSVENOR,  
Paterson, N. J., or 60 Wall street, N. York.

**DAVENPORT & BRIDGES CONTINUE**

to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of the trellis for the purpose of giving an additional, Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

## ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge.....	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	13 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER  
Surviving partner of  
STANCLIFFE & DRAPER.

No 23 Pear street,  
ly10 near Third,  
below Walnut,  
Philadelphia.

LAP—WELDED  
WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

ly25

28 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Dec. 25, 1y\*

Pres't. Mt. Savage Iron Works,  
Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT &amp; CO.,

Agents.

ly48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.**, No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.  
Nov. 16, 1846. 461f

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHOENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

O. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 10]

SATURDAY, MARCH 6, 1847.

[WHOLE No. 559, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES CONNECTING** with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50	and \$3.00
" " Reading, 58		2.25	and 1.90
" Pottsville " 34		1.40	and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

8 ft

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

### SPRING ARRANGEMENT, March 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7½ A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 4½ P.M.

Leave Great Falls at 6½ A.M.

### HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5-50 P.M.

Leave Haverhill at 6½ A.M. and 4 P.M.

### READING TRAINS.

Leave Boston at 9 A.M. and 8 P.M.

Leave Reading at 6½ A.M. and 1½ P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 9 A.M., 2½, 5-50 P.M.

Leave Medford at 6½, 8 A.M., 1½, 5½ P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1531

CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. P. Olarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 u

## NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston. New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

32 ly J. W. STOWELL, Sup't.

# TROY RAILROADS.—IMPORTANT NOTICE.

Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

## TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail, which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

## TROY AND SARATOGA RAILROAD.

### THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

# BALTIMORE AND OHIO RAILROAD.

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$19. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

## WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

## MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

# NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for

Columbus and Cincinnati,

St. Louis, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance 65 "

TIME.

From Buffalo to Sandusky 24 hours.

Leave Sandusky 5 a.m. to Columbus 14 "

From Columbus to Cincinnati 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin \$6 00

" " " Steerage 3 00

" Sandusky to Columbus 4 50

" " through to Cincinnati 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 3 1/2 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.

M. & S. C. R. R. Co.

Sandusky City, Ohio.

# NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

## RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

## SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 2 45 and 4 05 p.m.

# BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare.

Morning and

Afternoon Trains between Balt-

imore and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at 9 a.m. and 3 1/2 p.m.

Arrives at 9 a.m. and 6 1/2 p.m.

Leaves York at 5 a.m. and 3 p.m.

Arrives at 12 1/2 p.m. and 8 p.m.

Leaves York for Columbia at 1 1/2 p.m. and 8 a.m.

Leaves Columbia for York at 8 a.m. and 2 p.m.

## FARE.

Fare to York \$1 50

" Wrightsville 2 00

" Columbia 2 12 1/2

Way points in proportion.

PITTSBURG, GETTYSBURG AND

HARRISBURG.

Through tickets to Harrisburg via stage to Har-

risburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3 1/2 o'clock,

a horse car is run to Green Spring and Owing's

Mill, arriving at the Mills at 5 1/2 p.m.

Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

# CENTRAL RAILROAD-FROM SAVAN-

nah to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$6 00. Freight—

On weight goods generally 50 cts. per hundred.

On measurement goods 13 cts. per cubic ft.

On brls. wet (except molasses

and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery 40 cts. per hundred.

On hhds. and pipes of liquor,

not over 120 gallons \$5 00 per hhd.

On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

# THE BEST RAILROAD ROUTE TO THE

Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65

miles; take Stage to Mans-

field, 88 miles; thence by Cars to Sandusky, 56

miles to the Lake; thence Steamboat to Buffalo, 230

miles.

Fare from Cincinnati to Sandusky \$8 00

" " Sandusky to Buffalo, Cabin 6 00

" " " Steerage 4 50

Fare by this route, although the cheapest across

the state, will be reduced in a short time, railroad

lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Co-

lumbus at night.

Leave Columbus in the morning, arrive at San-

dusky same day.

Leave Sandusky, by Boat, in the morning, arrive

at Buffalo next morning in time for the Cars north

and east for Niagara Falls, Canada, Saratoga

Springs, Troy, Albany, Boston, New York, Wash-

ington, or Philadelphia.

Passengers should not omit to pay their fare

through from Cincinnati to Sandusky, or from Co-

lumbus to Sandusky via Mansfield; as this route is

the only one that secures 56 miles [this road is run

over in 2h. 50m.] most railroad which is new, and

is the shortest, cheapest and most expeditious across

the state.

Fares on the New York railroads are about to be

reduced. B. HIGGINS, Sup't, etc.

Sandusky, Ohio. M. & S. C. R. R. Co.

# THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for

Railroad Iron of any required pattern, and warrant-

ed equal in every respect in point of quality to the

best American or imported Rails. Also on hand

and made to order, Bar Iron, Braziers' and Wire

Rods, etc., etc.

PETER COOPER 17 Burling Slip.

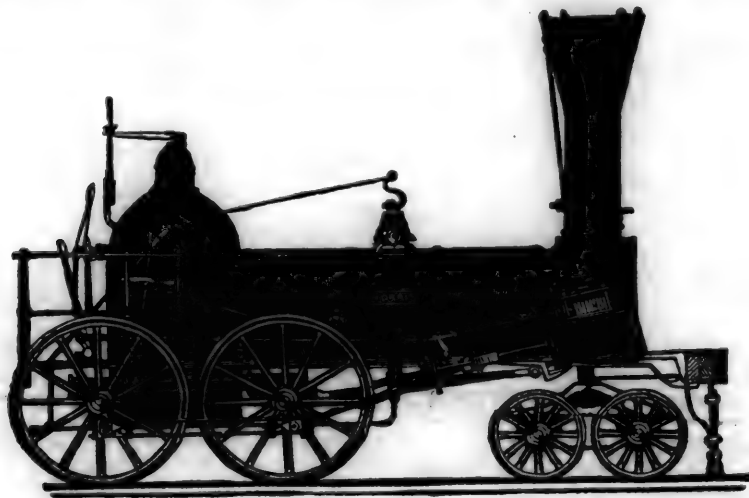
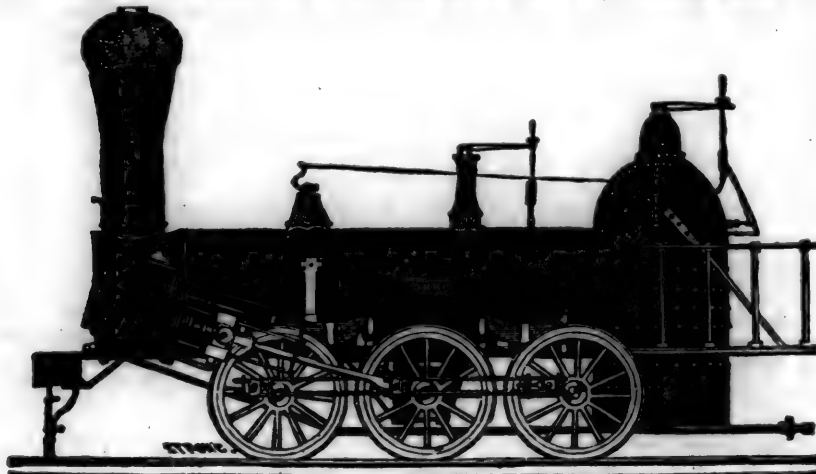
1y10 New York.





# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark, N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand by A. & G. RALSTON  
Mar. 20th 4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works,

Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.



## Items from late English Papers.

We are principally indebted to the *London Mining Journal*, of January 9th, for the following items of intelligence, from abroad.

**Lancaster and Carlisle Railway Works.**

—At the banquet by Messrs. Stephenson, Brassey, and Mackenzie, the contractors, in celebration of the opening of the Lancaster and Carlisle, the following facts were stated in a speech from Mr. Mould, the contractors' superintendent. In the blasting of rocks, no less than 4800 barrels, or 200 tons, of gunpowder had been used. The patent fuses alone, if put on a line, would reach 400 miles. The number of nights during which the men worked was 152,147. The number of horses employed was 10,500. No fewer than 400,000 yards required blasting, as it could not be removed by any other means. The number of bridges on the line was 219; of culverts, 230; and of viaducts 500. The greatest number of men employed was about 10,000, and the number of workmen altogether was equal to 3,000,000 in one day—while the excavations averaged 100,000 cubic yards per mile. The number of wagons employed was 2200, which, if extended in a line, would reach nearly five miles; and the temporary wheeling planks, placed end to end, would extend to 35 miles.

**Consumption of Smoke.**—Mr. T. M. Dean of Stockport, has obtained letters patent for an improvement in the construction of furnaces of steam engines and other boilers, by which the combustible vapors are consumed, and fuel economised. It consists in dividing the furnace between the fire doors and bridge into two parts by a partition wall; for feeding each of which with, there is a double feeding apparatus attached, worked by the engine in such manner, that when one side of the furnace is being fed, the damper on that side is closed, and the body of dense smoke passing over the incandescent fuel on the other side is consumed, and vice versa. The machinery for effecting the necessary movements in simple and complete, but cannot be described without a diagram.

**Application for Charters.**—The following is the result of all the private bills for railways, canals, etc., deposited in the Private Bill Office, for the consideration of Parliament, with the amounts of estimated expenses, namely: railways, £90,789,274; canals, 297,950; water works, £1,063,631; docks, £2,996,683; pier and harbors, £263,031; bridges, £13,000; roads, 13,140; miscellaneous, £180,358; total, £95,740,067. The capital stock of these schemes is £82,100,970, and they are authorized to borrow the sum of £33,472,794.

**Important Experiment.**—An interesting and very important experiment was made this week, at the Prior Field Iron Works, belonging to Mr. H. B. Whitehouse, on some cast iron girders intended for the steam factory buildings at Portsmouth, now in the course of erection. The experiment was made under the direction of Captain James, of the Royal Engineers, on the part of the Admiralty, and in the presence of Mr. Peter Rolls, contractor for the works at Portsmouth, Mr.

Henry Smith, of West Bromwich, and several other gentlemen; and nothing could be more satisfactory than the result—as the girders did not break till they had sustained the weight of 30½ tons over the weight which the strength of the girders, computed by Hodgkinson's rules, was calculated to break with. The mass of iron distributed over these girders exceeded 7 feet in height, and showed that the castings were capable of sustaining a very much larger weight than they could ever be loaded with in the factory for which they are intended.—*Aris' Birmingham Gazette*.

**Steam Superseded.**—Sir John Rennie, in his able annual address, says—"The steam engine itself, improved as it is, and wonderful as has been the results produced by it, is capable of further improvements. Its bulk and weight may be further diminished, both in the form and construction of the boiler as well as the engine itself, and thus in effect, its power may be increased; or it may be reserved to us to discover the means of producing, and rendering subservient to our purposes, some other power which shall surpass steam, or, perhaps, to substitute for it that all-powerful agent, electricity, which Jacobi has already attempted to apply to navigation.—Obscure and difficult as the subject may appear now, it may still be realized. Our indefatigable and enlightened honorary member, Faraday, has pointed out the way, and is still proceeding in his distinguished career with remarkable success, and we must not lose the opportunity of profiting by it: in fact, by well directed and combined exertions, it is impossible to foresee the results which may yet be arrived at."—*Sir J. Rennie's Address*.

**Railways.**—The present week commenced by the railway share market being very flat; notwithstanding which, some of the old lines advanced a little. Tuesday and Wednesday business remained excessively dull, and with a marked tendency to further decline in the majority of new lines; the country orders, which came in so freely last week, have suddenly ceased; and the dullness may, in a great measure, be attributed to that circumstance. An evident improvement took place on Thursday; prices rallied, and were pretty well maintained, and the market closed yesterday without any particular relapse towards its former dullness.

**Iron Steamers.**—The following provisions in the Steam Navigation Act of last session, which came into operation on Friday last, has reference to iron steamers. Section 2. "And be it enacted, that all steam vessels built of iron, of 100 tons burden, the building of which shall have been commenced after the passing of this Act, shall be divided by transverse water tight partitions, so that the fore part of the vessel shall be separated from the engine room by one of such partitions." The Act was passed on 28th August.

—You will not have forgotten the quotation made in a preceding letter from *Le Siecle*, relative to the demand made by the Northern railway company, to be allowed to import rails from England on paying a somewhat smaller duty than that fixed in the tariff. The

*Siecle* of this day announces that this demand, after being taken into consideration by the government, has been rejected.

**Railway Traffic Returns.**—From these returns, it will be seen, that the amount of traffic for the last week, on nearly 2730 miles of railway, was £142,627, thus accounted for: £77,385 for the conveyance of passengers only, £33,919 for the carriage of goods, and a remainder of £31,323 for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of £19,386.

**London and York Railway.**—The works on this line are proceeding with the utmost rapidity. Nearly the whole of the land is in the possession of the company, and surveyors are engaged on the entire length of the line, staking out, etc.

**French Railways.**—No tender has been made to the Minister of Public Works for undertaking the St. Dizier and Gray railroad, consequently the execution of the works remains in the hands of the government.

**Railway Speed.**—The government inspector, Capt. Coddington, travelled by the Great Western on Monday, at the rate of *seventy-two miles an hour!*

## Foreign Extracts.

**Atmospheric Railways.**—The atmospheric system has been the subject of much discussion here and elsewhere. It was first proposed in 1824, by Vallance, of Brighton, where a working model was constructed of sufficient dimensions for the carriages to be introduced at one end of a tunnel; and the air being exhausted by a steam engine at the other, they were propelled forward by the pressure of the atmosphere. It was even proposed to adopt the system for the speedy transmission of letters; the system, however, was necessarily so imperfect, that except for the ingenuity of the idea, it was of no practical utility. It was afterwards improved by Medhurst, in 1827, and was brought forward by Pinkus, in a more complete form, in 1834, by making the carriages travel outside the tube; and in 1839 it was further improved and patented by Clegg; since that period it has been brought into operation by Clegg & Samuda, who tried an experiment upon a working scale in 1840, for about a mile in length, at Wormwood Scrubbs. This experiment showed that a load of six tons could be propelled at a velocity of 30 miles an hour with an atmospheric tube only nine inches in diameter, and induced the leading proprietors of the Dublin and Kingstown railway to adapt it, for extending that line to Dalkey, a distance of 1 3/4 mile, where the country was difficult, and not well adapted for locomotives. That extension was opened in the latter end of 1843, and has continued working ever since. The line is single; the rails, though rather lighter, are laid upon the ordinary plan; and in the centre between them there is a tube about 15 in. diameter, having a slit or opening at the top, which is closed by an elastic valve; a piston fitted to the foremost carriage of the train, is inserted into the tube which is connected at the upper end with an air pump, worked by a steam engine, which

exhausts the air from the tube, and the piston attached to the foremost carriage is then urged along the tube by the pressure of the atmosphere, and draws the train with a velocity in proportion to the perfection of the vacuum in the tube; as fast as the piston advances, the valve in the slit of the tube is opened, and is closed again after the piston has passed, and is rendered tight and impervious to air by a composition of fatty matter placed in the groove into which the edge of the valve falls. The planes of this line are extremely steep, being in some places 1 in 50 and the curves are very sharp. The highest vacuum obtained has been 26 inches, with a speed of 35 miles an hour. The train returns from Dalkey by gravity alone. For a first experiment, it has been tolerably successful. The system is being tried upon a larger scale upon the Croydon and the South Devon railways; a portion of the former has been opened, and a speed of 60 miles an hour has been obtained, with a vacuum in the tube of 27 in.; and a train consisting of ten carriages, weighing 50 tons, has been propelled 5 miles in 8 1/4 minutes, or at the rate of 35 miles an hour, the barometer indicating a vacuum of 25 to 28 in. The engines are 3 miles apart, and a power of 300 horses is employed for the whole distance. The tube is 15 inches in diameter, and the air pump 6 feet 3 inches diameter; the steepest plane is 1 in 50. The South Devon line has not yet been tried. Considering the recent introduction of this system, and the new contrivances required in all its details, much has been done—with further experience, it is not improbable much more will be effected. Pilbrow, in 1844, patented a modification of the system, which is ingenious, but has not yet been sufficiently tested to prove its merit. Halls proposed to improve the valve on the top of the atmospheric pipe, by means of two small inflated elastic tubes, fixed in grooves on each side of the opening on the top of the pipe, through which the rod attached to the piston should slide between the tubes, and which should close the orifice as the piston moved. This ingenious idea requires the test of experience.—*Rennie.*

**New Railway System in France.**—The new railway opened in June last, from Paris to Sceaux, and constructed on the principle of a series of curves of small radii, has created a great deal of interest, as establishing a new theory in railway locomotion, and breaking down the barriers of prejudice, which obstinacy and ignorance had reared around this new national system. The distance from Paris to Sceaux is about 6 1/2 English miles; and in this distance the line traverses curves in all directions, of 150, 50, and even 30 metres radius; sometimes a straight line for a short distance precedes or succeeds a curve, and at others a curve succeeds another, but in a contrary direction, and gradients of all kinds are met with in the distance, the line much resembling a zig-zag sheep walk up a hill side. The train thus resembles a gigantic serpent, twisting and twining in all directions as it passes over the yellow sand: but no accident, no running

off the rails, is feared as the result. M. Arnoux, the inventor of the system, has long turned his attention to the inconvenience and danger of perfectly ridged axles, and the wheels running with them, and the construction of the wheels and axles is the principal point in the system; the construction of the beds of the carriages will differ very little from those of ordinary carriages. Each axle is pierced in the centre with a main iron bolt on which it can turn horizontally, while the wheels mounted on patent cylindrical boxes have free play on the journals. The fore and hind wheels of the different carriages in succession are united by a carriage beam, which is pierced by the main bolts which hold the axles, and which support two transoms, on which the beams are placed. The fore axles of the first coach receive its direction from the road itself; to effect which, two irons, each having two prongs, are attached to the centre of the front axle; these prongs descend to the rails on both sides, and carry a small wheel which, touching the rail, gives to the axle the right direction to the road. The carriages are also united by cross chains to carry the first impulse given throughout the train, and there are some minor details which are not of importance to describe. The appearances at each termini are singular; the station is oval, and the trains are ranged in a curve, with the coaches standing on the same rail, at nearly right angles with each other; while all the axles converge as radii, to a point in the centre, where stands a flag staff. Here are no multiplicity of rails, no switches, needles, turntables, etc. The train comes on at one side of the oval, on a single pair of rails, waits till another train comes in, when it gracefully performs the circuit, passing off at the other side of the oval, and on to the same line again. The fares are—saloons 10d., first class 7d., second 5d. and third class 3d. The average speed is, perhaps, 25 minutes for the distance, which considering the nature of the road, and the number of stations, is sufficiently fast for the length; but express trains, without one stoppage, have gone at the rate of 37 miles an hour. M. Arago, one of a commission appointed by government to investigate the new system, has reported thereon; in which he remarks, that it would not impose an increase of expense for traction; that with respect to safety the most timid ought to be satisfied; that railways may henceforth be constructed at much less expense; and that the name of M. Arnoux will be most honorably placed by the side of others, who, by their inventions, have rendered great service to railways.

**Goddard's Improved Anemometer.**—The increasing attention which men of science are giving to the study of atmospheric influences, has induced many attempts at improving the anemometer; and the advantages which Mr. Goddard claims are, that the scale of time is five times larger than those in use within equal sized sheets, the register of direction is more accurate, an equal quantity of paper being used, and it can never fail to register; the data also are more comprehensive. It consists of a double vane, shaped

like a truncated cone, the small ends being secured to a vertical brass tube, passing through the roof of the building, and resting at its lower end in a socket, fixed on a table; to the lower end of this shaft is a cylinder, which rests on the table, and follows every movement of the shaft, its upper face cut obliquely; the points of the compass being marked around its periphery. At a short distance is fixed an upright drum, which turns upon its axis, and is acted upon by wheels and an endless screw in such manner that it always turns with the vane. Between the vane, shaft and drum, a vertical guide is fixed firmly on the table for the purpose of carrying three pencils, one under the other. To the top pencil, an arm, pendant from one end of a vibrating lever, is attached; this lever is supported by a bracket from the table; and, at its other end, it is connected by a pendant arm, with the minute hand of a clock, and which thus marks the time on the drum, while the oblique faced cylinder marks the point from which the wind blows, the upper point of the oblique circle being north, the lowest point south, and two intermediate points east and west. It is thus evident that, by drawing vertical lines on the paper round the drum, the movements of the wind at any given time may be clearly traced.

**Improvements in the Steam Engine by Dr. Haycraft.**—The intention of Dr. Haycraft's improvements in the steam engine is to save fuel, by the use of what he calls anhydrous, or perfectly dry steam. He has found that three conditions are necessary completely to effect this object; first, that the steam should be separated from the water of ebullition, or priming, before leaving the boiler; secondly, that it should pass through a tube, or tubes, surrounded by steam of a somewhat higher temperature, which the inventor calls a siccator; and, thirdly, that the working cylinder be also surrounded by steam of a somewhat elevated temperature. The two last conditions are easily effected by throttling the steam before it enters the siccator which supplies the engine. A low pressure engine which drives a flour mill has been altered on this principle, and it has been ascertained that the consumption has been diminished from seven to four pounds for each bushel of flour ground. As, however, the adaptation of these three particulars is attended with considerable expense, the inventor has been induced to try the effect of using only what he calls a priming chest, which fulfils the first condition, viz: that of separating the steam from the priming. This apparatus has been introduced into the *Lady of the Lake*, one of the Iron Steamboat Company's vessels, with a tubular boiler, and the machinery by Penn. It produces a saving, as ascertained by the difference of temperature of the hot well, of one-sixth, with an increase of speed. The engines work more steadily, and the boiler is not required to be blown out but once weekly, instead of thrice. The inventor supposes the priming chest to be especially adapted for locomotives for the prevention of priming; he considers that priming takes place in an insensible manner in all boilers, even in those cases in which



there is no ordinary evidence of it. The principle on which the steam is separated in Hayercraft's priming chest, consists in causing the steam to reverberate several times in an apparatus similar to what is used in purifying gas, while the water separated is drained off by pipes. He has given 14 different forms in which it may be constructed, one of which somewhat resembles Seward's separator.

**Effects of Shot on Iron Vessels, Kamptulicon.**—In a recent number of the Mining Journal, we inserted a letter from a correspondent, "J. H. S." (Newcastle-upon-Tyne) on this subject; and although we cannot furnish the data required by him as to size of angle iron, thickness of plates, etc., we can state that Lieut. G. Walter, R.M., inventor of the kamptulicon, is still pursuing his experiments at Woolwich Dockyard, by order of the Lords of the Admiralty, on this important subject. Among other trials, he is now ascertaining whether this composition of caoutchouc and cork will answer as a medium for causing the adhesion of copper sheathing to the bottoms of vessels built of iron, without nails of any kind. A part, or model, of one side of the stern of an iron-built vessel, has been constructed in the part of this factory where the tubular boilers are proved, and a layer of the kamptulicon composition, of the thickness of felt, applied on the outside, to prevent the contact of the copper with the iron, which would soon, by its action destroy the latter. The kamptulicon composition causes the copper sheathing to adhere to the iron hull of the model very tenaciously; and, if the thickness is found sufficient to prevent the action of the copper on the iron, a great advantage will be gained. The idea of protecting the iron ships *outside* by the kamptulicon coppering, and their crews *inside*, from the effect of cannon shot, by a lining of this elastic substance, which catches the splinters and closes over the holes, even against the pressure of water, will render the ships of our iron navy the most perfect in the world. With respect to the kamptulicon coppering, we have no doubt, from the totally impervious nature of the material, and its resistance to any acids which could come in contact with it in such situation, that it will be found entirely to prevent any galvanic action between the copper and iron. We expect, however, in a few weeks the above experiments will be conclusive on the subject—the results of which we shall lay before our readers.

#### Railroads in England.

A recent number of the Edinburgh Review contains a lengthy article on the subject of railroads throughout the world, in which are gathered together a vast number of interesting facts on this important subject. To make even a synopsis of the whole article, would cause us to transcend our limits; and we confine ourselves to a detail of what it relates concerning railroads in the British empire.

The Liverpool and Manchester Railroad was the first built in England, and was at first only intended to transport merchandize, because of the dilatoriness of the canal navigation between the two cities, it taking twice as long for cotton to reach Manchester from Liverpool, as it did to reach Liverpool from

New York! and the charges were enormous at that. When this road was in course of building, and it had been resolved to make use of the locomotive engine thereon, Mr. Stephenson, the celebrated engineer, diffidently suggested that twelve miles an hour might be accomplished by its use; but the idea was scouted by the "knowing ones," as the blockheads of the world style themselves, one of them even publishing a work for the purpose of proving that he shared not in Mr. Mr. S.'s insanity! He did that for himself, which Dogberry was so anxious that some one should do for him—wrote himself down an ass; for in a few months after, an engine went over that road at the rate of 29 miles an hour! It was soon proved, that more money was to be made by carrying passengers than merchandize, especially as the canals had peculiar facilities, if they but choose to exert them, for doing the latter: and though the freight sent over the road amounted to 1000 tons per day, it fell short of the expectations of the projectors of the enterprize. But travel increased three-fold at once, and heavy dividends were the immediate result, and the shares were taken at a premium of 120 per cent. This road was opened in 1825, and its success led to the immediate building of others, so that by June 30, 1845, the number of miles of opened railroad in England, was 2,118 1-4; and parliament had sanctioned the construction of eighteen hundred additional miles. The average cost of the construction of railroads in England, was £35,000 per mile, those on the wide gauge plan costing £40,000. This enormous cost has its cause, principally in the superior manner in which the English railways are constructed, the "way and works" actually absorbing £22,000 per mile of the cost. Land cost £4000 per mile; locomotive power and working stock, £8000; and office and sundries, £1000. Total receipts on the several roads, for the year, ending June 30, 1846, was £6,309,714, of which the sum of £3,976,341 was from passengers, and that of £2,333,373 from freight. The amount of increase on freight was greater annually than that on passengers, and the average total, for the year 1845, excluding fractions, was £3000 per mile. It is estimated that 42 per cent. of the revenue, is sunk in expenditures, leaving 58 per cent., or £1740 per mile, as the profit on £35,000, being at the average rate of five per cent. "Thus it appears," says the reviewer, "that, although several great enterprizes give ten per cent., the general average profits on these speculations does not amount to more than the ordinary profit engaged in large commercial investments. Many unsuccessful lines pay little or no interest on the capital sunk, and, indeed, some yield dividends of comparatively small amount; and thus the larger dividends of the more successful lines are neutralized." Is not this pretty much what has been the result in the United States? The per centage of the revenue from passengers in England, is 63; from freight, 37. It appears that the "way travel" is much more profitable than the terminal travel, 80 per cent., of the passengers

not going over twelve miles each. This is contrary to what is generally supposed to be the case, most people thinking that the income from travel is derived from persons going from one end of the line to the other. "It is clear," as the Edinburgh says, "that terminal populations have but little connection with the financial success of railway projects. The main support is short traffic." There are three classes of cars on the English lines, the travel in which is distributed as follows: First class, 16 1-2 per cent; second class, 43 1-2; third class, 40. To each £100 of revenue, the different classes contribute at the following rates: First class, £40 14s.; second class, £42 16s.; third class, £16 10s. The reason why the third class is so unproductive, when it should yield by far the most proportionate revenue, is because there are four disturbing causes to prevent such a state of things, namely, high (comparative) fares, unsale and uncomfortable carriages; inconvenient hours, and slow travelling. The number of passengers carried over the English roads, for the year ending June 30th, 1845, was 33,791,253. The locomotive engines employed in drawing passenger trains alone, performed, that year, the work of 50,000 stage coach horses. The saving of money to travellers, was but a trifle under \$7,000,000, that being the difference between the fare charged on the railroads and what would have been paid for stage coach travelling.

There has, as most people are aware, been a great railroad mania in England. During the height of it, parliament sanctioned the building of lines which, if completed, will make the whole number of miles of railroad in England 9300! Four thousand miles of railroad were authorized at the last session of parliament, which it will take the sum of £150,000,000 to complete, exclusive of loans, £50,000,000 will be required in addition to complete the lines previously authorized; so that England will have, when all these undertakings shall have been completed, and including the lines that have long been in operation, about one thousand three hundred millions of dollars invested in railroads! It is extremely doubtful, however, whether the various undertakings can all be completed, at least, for many years; but if all these roads should be constructed, say in five years, the pressure on the money market must be heavy indeed, and a monetary revolution will take place. All business operations will be affected, and labor seriously suffer. Nor will England alone be the sufferer. That country is the heart of the business world, and when the heart suffers, every part of the system must sympathize with it. We shall have our share of suffering, in consequence of the delusion on the subject of railroads in England. Even if the several schemes should all be successfully carried out without producing any immediate disastrous results, it is by no means probable that all the new lines will be profitable, and hence large amounts of capital will be sunk, which cannot fail to operate injuriously on trade. The subject is one of moment, and cannot fail to

excite more attention than it has hitherto received in this country, between which and England an indirect alliance is forming itself, founded on benefits received and benefits conferred by each party.

#### The Iron Trade.

We find in the Liverpool Albion of January 7 and 11th, the following extracts from the circulars of two or three extensive iron houses in England—and tho' we have referred before to the subject generally, since the arrival of the last steamer, we have no doubt the annexed extracts will be found interesting to iron dealers in this country.

From Messrs. Martin & Co's. Circular, Glasgow.

"Allow us to offer you one or two short remarks on the Scotch iron trade of last year.

"At the end of 1845, our closest scrutiny made the stock 220,000 tons; at the end of August last, 130,000; now, at the end of December, fully 140,000. The increase, being chiefly in December, still goes on.

"We consider the very current estimate of the make for 1846, 520,000 tons, to be a fair approximation.

"The supply of 1845 shows thus:

Stock.....	220,000
Make.....	520,000—740,000 tons.
Deducting the present stock..	140,000 "

The shipments and consumption appear to have been 600,000 tons.

"We hold it useless to attempt classifying the items of consumption, any statements that are tried being of necessity arbitrary. It is accurately ascertained that the quantity sent off by the canal and Clyde was 313,000 tons, but this includes supplies to several large foundries near the canal. At the end of 1845 the furnaces in blast were 88, at the end of June last, 94, and are now 100, (including 2 new ones at Eglenton, and one at Glen garnock.)

"We are not only led to look at 100 as a minimum during 1847, but as a third will blow at Eglenton in a few days, and elsewhere one or two repairing are said by the owners to be on the point of blowing, we are induced to think the make in 1847 will not fall short of 600,000 tons, on the very usual assumption of 110 tons weekly average per furnace; these recent additions strengthening our opinion that a few more furnaces will blow by degrees.

"Between stock and make we look for a supply in 1847 quite equal to 1846. As to the probable demand on it, opinion will be various.

"The exports were, in October, 26,000 tons, in November, 21,000 tons, and in December, 17,000 tons."

From Messrs. J. Watt, Son & Co's. Circular, Jan. 4.

"On reference to the prices of iron during the past twelve months, you will observe that we have experienced very little fluctuation indeed. During the whole of the year the demand has been quite equal to the supply; and the manufacturers have exercised great prudence in resisting attempts to raise prices to an excessive degree, apprehending very justly, that the temporary advantage gained thereby would be no equivalent for the ultimate injury which might result from such a

step. In consequence of the demand for labor upon railways and other public works, and the difficulties which the iron master has always to contend with in the management of his workmen in times when wages are high, there has been very little increase to the make during the year. In fact, in some districts great difficulty is experienced in keeping the old works fully going, from want of coal, etc.

"This state of things is likely to continue, and when, along with it, we take into account the certain demand for iron which there will be for a length of time, we are led to the conviction that the same steadiness will last throughout the year upon which we have just entered.

"Manufactured iron has varied little in price throughout the year, with the exception of railway bars, which were driven above their relative value by extensive speculation; the price, which, in January last, was as high as £11 10s., has declined to £9 15s., to £10 per ton, at which rates very extensive contracts have recently been entered into, and below which it is probable purchases will be made throughout the year. The number of railways already forming, and their rapid extension in this and other countries, are a sufficient guarantee for such a demand for years to come, for iron required in their construction, as will secure to the trade a high state of prosperity. On account of the greater profit attending the manufacture of railway bars, much of the mill power formerly employed in the production of merchant bars, and other descriptions of iron, has been directed to the former, and, in consequence, the make of the latter kinds of iron, has been curtailed a considerable extent. This remark applies especially to Welsh bar iron, the stocks of which are exhausted both in the hands of dealers and makers, and will be difficult to obtain, without an advance in price in quantity sufficient to meet the spring demand. An advance, from £8 10s. to £9 per ton, in Wales, has already taken place, which has compelled the dealers here to a proportionate rise in price, but which must be increased soon to meet the present cost and charges. Our impression is, that the price in this part will range through the spring at £9 15s. to £10 per ton.

"The demand for the finer descriptions of iron, manufactured in Staffordshire and Shropshire, is equally great, and the makers there have even more difficulty in keeping pace with it than their Welsh neighbors. It would be very easy for them to obtain a considerable advance, but the leading makers, from the prudential motives referred to, are anxious to keep rates as they are, and it is to be hoped that their counsels may prevail at the quarterly meeting which will shortly be held.

"The increasing use of iron in the construction of steam and sailing ships, bridges, etc., (for the Menai tabular bridge alone 8,000 tons are contracted for,) insures to this district full employment and high prices for a long time to come.

"Scotch pig iron being now an article much

speculated in, has not maintained equal steadiness of price with manufactured iron. During the year prices have varied from 65s. to 77s. 6d. per ton, cash, free on board at Glasgow, for mixed numbers. In November, great dullness prevailed, and the price fell to 68s. per ton, since when it has gradually advanced to 75s. per ton, at which considerable firmness at present prevails.

"The following statement of stocks shows a reduction during the year of about 80,000 tons; a large quantity certainly, but which is accounted for by the extensive shipments to the continent of Europe, induced by the moderate rates of 65s. to 70s. per ton, which prevailed from April to August. As the stock has not diminished since August, and we commence the year with about 150,000 tons, and may calculate upon a make of at least 600,000 tons during it, should no unlooked for obstruction arise, we may fairly count upon a sufficiency for all demands, and cannot expect any permanent advance above the present rates:

Estimated stock, December, 1845.....	220,000 tons.
" make in 1846,.....	520,000 "
" stock 1st January, 1847.....	144,300 "
" export and consumption in 1846.....	595,700 "

#### Extensive Manufactory.

In the last number of Hunt's "Merchants' Magazine," we find the following notice of the perfumery manufactory of Eugene Roussel, in Philadelphia, which is the most extensive establishment in the United States. Mr. Hunt says:

"M. Roussel is a Frenchman, and came to this country in 1838, when he commenced the manufacture of perfumery in every variety; and, from a very small beginning, he has risen to be one of the most extensive manufacturers in the world. The large experience which M. Roussel enjoyed in Paris, as foreman of the extensive house of Laguerre, Pere et Fils, so generally known for more than half a century throughout all Europe, and who were honored with a silver medal from the French government, at one of the great triennial exhibitions of the products of national industry in France, eminently qualifies him to conduct, profitably and honorably, the business in which he is engaged. The capital invested in Roussel's establishment, exceeds \$50,000, and the number of hands employed, is over 100.—The shaving cream manufactured at this establishment, is of a superior quality, and exceeds 10,000 pounds per annum; which at a very moderate calculation of 25 times for every box, would shave 4,000,000. Roussel manufactures over 50,000 lbs. of toilet soap, of all kinds, and 2,500 gallons of cologne water, besides a large quantity of hair oils, pomatum, extracts for the handkerchief, hair dyes, etc. The amount of his annual sales of perfumery and soaps, exceeds \$60,000.

"M. Roussel was the first to introduce mineral water into the United States, in bottles, which he commenced in 1839. The sales of this water did not average more than 10 or 15 dozen bottles per day, and at this time he puts up and sells from 1300 to 1400 dozen daily. Not less than 100 establishments for the manufacture, have grown up since M. Roussel introduced its manufacture into the United States. The value of the corks consumed, alone, amounts to \$10,000; sugar, \$12,000; cost of bottles per annum, \$6,000; number of bottles manufactured per annum, 4,500,000. The total value of mineral waters sold, amounts to \$60,000. The amount of wages paid persons in the manufacture of the several articles, is about \$30,000. M. Roussel has received several gold and silver medals from the different industrial institutions of our country, and we have no doubt but that the articles from his establishment are equal in every respect to those made in Paris"



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

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The Table of Railroads in the United States will be sent out in the next number.

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

### Mr. Reobling's Communication.

We conclude, in the present number, the able and highly interesting article of Mr. REOBLING, on the subject of the great continuous chain of railroad from the Atlantic coast to the city of St. Louis.—We again ask for it the special attention of our readers—confident that it will well repay a careful perusal. The pamphlet edition of the article, entire—of which we have printed a large number—will be put into circulation immediately.

### Central Railroad.

Some opposition made its appearance in the Legislature of our State, it seems, in regard to the Central Railroad; and the friends of this measure entertained fears that its progress would be temporarily retarded. The North American of Friday, (through its Harrisburg correspondent,) gives the gratifying information that all opposition to the bill, in the House, was withdrawn, and it is now before the Senate. Some opposition may be looked for in that

body, but it is confidently expected, it will receive the sanction of the majority and be sent to the Governor.

The North American remarks that "it was hoped that it had outlived the prejudices against it; and that, at a time when our sister States are pressing so eagerly onward to the acquisition of the trade of the west, every Pennsylvanian would regard with pride the enterprise and vigor manifested by the citizens of this State in relation to this noble enterprise."

P. S.—THE LETTERS PATENT for the Pennsylvania railroad were received in this city on Friday evening. We congratulate the community upon the bright prospects for the future, which are now before us, and join in the exultation which the untiring advocates of the road must feel at the consummation of their ardent wishes.

### Cutting the Telegraph Wires.

The wires on the Boston and New York Telegraph line, were severed again on the arrival of the Cambria, this week. A cotemporary says that "it is probable that the persons who have for some time back been tampering with the Telegraph wires between New York and Boston, especially at periods when foreign steamers are due, or have arrived, will be discovered. Just after the arrival of the Cambria at Boston, the wires were cut at Brighton, about 4 miles out. The severance was, however, soon detected, and the communication made complete again, so that the news was regularly transmitted. Two persons, one a female, went to Worcester in the 4 o'clock cars, and asked to have a communication in cypher forwarded to New York. They had been carefully looked after by the Telegraph agents and the railroad conductors, and circumstances pointed to them so strongly, that the communication was refused—the plea being that 'Boston was in communication with New York.' The parties have been traced, and their guilt will probably be established."

### Wire Bridges.

It is stated in the Rochester Democrat, that the Niagara Suspension Bridge Company will shortly proceed to the erection of a Wire Bridge across the Niagara river—the Queen's assent having been obtained. The whole of the stock, \$200,000 has been taken—one-half in Canada, and the remainder in New York and this city. The paper further says:

"Contractors in Philadelphia and Pittsburg offer to build a good and substantial bridge of wire for \$300,000. It will be 40 feet wide—the centre track for cars to connect with the Canada road through to Detroit, and capable of transporting 300 tons over it at once, at the rate of 10 miles an hour. There will be two tracks for carriages and a foot path. It will have three spans with abutments 200 feet high. It is supposed it can be completed in two years, which will make it ready for use by the time the Canada road is completed."

Thereputation of the "contractors" in Philadelphia and Pittsburg, competent to construct these bridges, is world-wide—and if they undertake it, the work will be creditably and substantially executed.

It is a mistake however, we imagine, that there is to be three spans. According to our information there is to be a single span, of about 750 feet, reaching from the American to the Canadian shore. It is true that the abutments are 200 feet high, but they are the natural banks of the river.

### Steam Coaches.

SIR JOHN RENNIE, in his late Address to the Institution of Civil Engineers in London, states that "Great efforts have been made to perfect steam coaches, so as to enable them to travel upon turnpike roads—but without much success. The idea was

suggested by Robinson to Watt, in 1759, and Watt patented it in 1784. Symington proposed it in 1786. Trevithick's patent of 1802 was the first high pressure engine that was actually made, and patents for improvements upon it have been numerous. Bramah constructed a steam coach in 1822 for Griffiths, which was not successful. Gordon tried one in '34, and Gourney, who was more successful, constructed some with boilers, having very small tubes; he attained a speed of 10 miles an hour on good turnpike roads, and ascended the steepest hills near London, he went from London to Bath and back, in 1831; and his steam carriages ran for four months between Cheltenham and Gloucester; but it was extremely difficult and too expensive to keep them in order.—Hancock constructed several with boilers composed of thin metal chambers; they ran for some time with apparent success; but there were so many difficulties that they did not get into use. Dance, Field, Hill, Macerone, Russell, Cayley, and others, also attempted it with varied success; but the system is inferior to that of railway travelling, and it is now generally given up as hopeless. It has been proposed to employ highly compressed air in place of steam, for propelling locomotive engines—first by Medhurst in 1799, and since by others—but without any trials being made beyond mere models."

### Railroad Items.

We learn from the Journal that workmen are employed in laying the foundation of a new brick passenger house for the Boston and Providence railroad company in Boston. It is to be about 300 feet in length, and will front on Pleasant street. The same company have just completed a new brick freight depot, 240 feet long, with an L of 50 feet long by 60 feet wide.

The citizens of Bangor, at a full meeting on Thursday evening last, expressed an unanimous opinion in favor of the Waterville and Danville railroad route.

The Bath Tribune says the subscriptions to the Penobscot railroad now amount to \$800,000. The directors have laid an assessment of five per cent. on the stock, to commence the work with. Mr. Green is organizing a corps of engineers, and will commence the survey about the middle of this month. Next Fall will see the road finished.

The business of the Georgia railroad, during the week ending Feb. 6th, 1847, amounted to \$10,337.

A correspondent of the Traveller, speaking of the Worcester and Nashua road, says its speedy construction may be regarded as certain. Its location is such as to secure a large local business. Having Worcester and Nashua (important points) as termini, it passes through the towns of Groton, Pepperell, Shirley, Lancaster, West Boylston, etc. The large business of these towns, with their manufacturing villages, and water power still to be improved, and agricultural products, etc., cannot fail to make the stock a good investment. Over forty miles will be saved in distance to the vast number of passengers from New Hampshire, going south and west.

The Worcester Palladium says that the Directors of the Western railroad have submitted to the town of Southbridge a proposition to build a branch, on certain conditions, to that town, from or near their depot in Charlton. It is his opinion that the requisitions will be complied with by the town. The length of the branch will be about nine miles, and the route, it is said, is quite feasible.

The Burlington Free Press thinks the passage of the railroad across the lake, by bridging, or otherwise, at Grand Island, quite out of the question, and

that there must be a transshipment from Burlington to Port Kent, making Burlington the terminus of the Boston roads. On the other hand, the Montreal Courier has the following paragraph:

"Latterly a most distinguished and experienced surveyor has been employed to find out the most advantageous railway route between Burlington and Ogdensburg, and it appears that after a competent survey, that gentleman has discovered and recommended a new and most favorable line.

"This line, in leaving Burlington, is to run along the east side of lake Champlain until it reaches St. Albans—from thence through Hog Island and St. Albert, in a direct line to Rouse's Point, where every facility is found for the construction of a permanent bridge across the Richelieu; the line then pursues its course through a level tract of land a little to the south and parallel with the divisional line 45, passing through the thriving village of Malone, and from thence taking the direction upon the borders of the St. Lawrence to Ogdensburg."

#### The Feeling in Maine.

The *Bangor Whig* states that the late meeting there, in relation to the proposed railroad eastward from Portland, was an enthusiastic gathering. About three hundred of the active business men, capitalists and the heart and muscle of the citizens, had signed the call for the meeting. At an early hour the City Hall was thronged, the galleries and every part, and stuffed and rolled up, head above head, to the ceiling. And after this there were hundreds who could not gain admission. There was a full representation of the different parties and various interests of the city. They met to express their opinion upon the subject of railroad communication between the city of Bangor and the westward, and it was found that amidst the vast throng assembled, there was in fact but one opinion, and that in favor of the Waterville and Lewiston route to Portland. This was the prevailing opinion among the citizens before the meeting, and there it was strengthened and clinched and made unalterable.

The remarks of Governor Kent, relative to the growth, present standing and future prospects of the city, were well calculated to direct attention to the importance of inviting investment of capital in manufactures here by securing the facilities of railroad communication with other portions of the country.

Attorney General Moore made a very clear statement of the advantages that would result to the State, and particularly to Bangor, from the construction of a railroad running through the valuable portion of the State between Waterville and Lewiston, calling out the full powers of that region of country, and stimulating to new life and greater efforts the whole State. It was a plain, forcible and convincing argument, from one filled with the subject, who comprehended with great clearness the merits of the subject. His remarks were listened to with much attention, and were repeatedly applauded.

The chaste, unpretending, business-like remarks of Rufus Dwinel, Esq., were calculated to give confidence to the enterprise of building the road, and were listened to with much attention and satisfaction.

Moses L. Appleton, Esq., was quite happy in his brief remark, particularly in reference to the union and harmony apparent in the meeting—although composed of so many various opinions and oppositions on other subjects.

On the whole, the meeting was indeed a "rouser" such as few occasions could bring together. We hope by and by to see many more meetings for helping forward the building of a railroad from this city

west, but we never expect to attend one which shall give more general satisfaction than that of Thursday evening.

#### New York State Canals.

We have received, says the Albany Journal a copy of the report of the Canal Commissioners made to the legislature of this State.

There have been more breaches in the canals during the past season than usual. Notwithstanding these occasional interruptions, there has been a large excess of tolls received over any former year, and a corresponding increase of business, of tonnage and of lockage, as well as of larger cargoes.

The amount of tolls received on all the State canals during the season of navigation in 1846 has been as follows:

On the Erie Canal .....	\$2,499,275 58
Champlain canal .....	108,094 67
Oswego canal .....	58,185 43
Cayuga and Seneca canal....	27,282 11
Chemung canal .....	13,503 44
Crooked Lake canal .....	1,912 81
Chenango canal .....	23,492 86
Genesee Valley canal .....	23,448 57
Oneida Lake canal .....	542 80
Seneca river towing path....	368 10

Total .....

Being an increase of \$109,924 50 over the receipts of 1845, notwithstanding the reduction of over 13 per cent. in the rates of tolls which took effect on the opening of navigation.

The expenditures by the superintendents of repairs on all the canals, including their salaries, the pay of lock tenders, etc., from the 30th September, 1845, to 30th September, 1846, amounts to \$507,433.

With regard to the lockages on the canals, we find the following particulars respecting an old lock on Fort Plain:

"During the months of October and November in 1845, the number of lockages made at this lock was 9,834, and in 1846, 10,224, being an increase of 390 in the latter over the former two months.

"The average number per day for the 25 days in November previous to the navigation being obstructed by ice, was 201.

"The largest number that passed this lock in any one day was 258, or one in about every five minutes."

The report estimates the expense of bringing into use double locks between Albany and Syracuse on the plan of using the old by the side of an enlarged lock, at \$334,500. On the plan of double enlarged locks it is estimated at \$639,000.

The remainder of the report is chiefly occupied with statements of the present condition of each of the canals.

We see by the Albany papers that, on Tuesday, a report was made by the commissioners of the canal fund to the legislature, of the quantity of products from, and the merchandize going to, other States during the last season of canal navigation. This statement shows that the total amount received for tolls on account of the trade with other States was

By the way of Buffalo .....	\$1,321,229
By the way of Oswego .....	185,892
By the way of Whitehall .....	22,475

Total .....

The rates of toll were reduced last spring on an average 13½ per cent. The products from other States including merchandize going to them, at rates of toll of 1845, would have yielded a revenue of \$1,653,658. The difference is equal to \$324,133. The reduction in the rates of toll were made with a view of increasing the products transported to such an extent

as to keep up the aggregate amount of revenue.—And it is believed the result has justified these anticipations. In the single article of corn there has been received

By way of Buffalo .....	1,191,069 bushels.
And by way of Oswego .....	333,066 "

Total .....

In 1845, less than 50,000 bushels of corn were received from other States; showing an increase in this article alone, of more than 1,400,000 bushels.

By comparing the tolls at Buffalo, Black Rock, and Oswego, for the years 1845 and 1846, it will be seen that the trade has greatly increased, and tolls were reduced with a view of increasing trade without diminishing revenue. The comparison is as follows:

Tolls Received	1845.	1846.	Increase.
At Buffalo .....	\$482,635	\$763,683	\$281,048
At Black Rock .....	56,583	83,929	27,346
At Oswego .....	138,704	165,866	27,162
At Whitehall .....	55,911	61,675	

Deduct decrease at Whitehall .....

Net increase .....

The tonnage from western States by way of the Erie canal was, in

1846 .....	506,830 tons.
1845 .....	304,551 "

Increase in 1846 over 1845 .....

The total value of products cleared at Buffalo, and mostly from other States was, in

1846 .....	\$15,819,314
1845 .....	9,510,000

Increase .....

#### Locomotive Engines.

A Correspondent of the London Mining Journal thus speaks of an eight wheel engine of Mr. W. Stubbs.

"The engine, we are credibly informed, is of immense power, travels easier, and is more steady than the six wheel engines. We understand that Mr. Stubbs has already brought out many valuable improvements, and those patented by Messrs. W. Stubbs and J. T. Grylls, of Llanelly, (the plans of which we have seen in London) appear to be well worth the attention of railway superintendents and engineers. We hope to see full particulars in your paper soon, as we believe some are being built at the manufactory of Messrs. Grylls & Co., Llanelly. We understand that in the case of the eight wheel engine, Mr. Stubbs does not wish, or intend, it to be thought, that this is the first attempt that has been made to use eight wheels, as that has been done upwards of 30 years ago, but this is the first successful attempt; and which, by the means adopted, has made a much better engine than any of the former eight or present six wheel engines."

#### A Valuable Discovery.

The New York "Farmer and Mechanic," thus alludes to an important invention, lately discovered: "Those who have been conversant with our journal, will recollect that we adverted to the fact of this discovery some months since, but now we are prepared to say even more than we had ourselves dared to hope from the invention, which is Wood & Hancock's patent oil saver and chemical oil. This discovery, we think, is destined to obviate the use of sperm and lard oil for railroads, machinery, etc., wherever the article is introduced. The great advantages over common oil for the above purposes, are apparent to any one who will take the trouble to investigate the subject, as in its application to the journal, not a particle is wasted, and the liquid, being enclosed, is kept free from dust and every impurity which can have a tendency to wear the journal, while the accu-



nomy in the saving of time is very great, both in its application to, and the cleansing of, the machinery, when oil is used.

"In regard to this invention, we invite particular attention to the certificates and testimonials of those who have tested the article, and which appear in our advertising columns, and, from a personal acquaintance with the efficient and enterprising general agent, ex-Alderman E. F. Brigham, of Brooklyn, together with the utmost confidence in him, and those well known enterprising gentlemen, Messrs. John W. Cochran & Sons, whose names we have the pleasure of introducing to our readers, in their disinterested certificate in its favor, and our own observation, we are prepared to say much, very much, in its favor. We are inclined to believe that those who early secure the advantages it offers, will derive essential benefit from its adoption."

#### Great Central Railroad from Philadelphia to St. Louis.

BY JOHN A. ROEBLING, C. E.

Written for the Railroad Journal, and read before the Board of Trade of Pittsburg.

(Continued from page 141.)

#### LOCATION THROUGH PENNSYLVANIA.

The practicability of constructing a continuous railroad with easy grades, from Philadelphia to Pittsburg, has been doubted by many. An opinion, that the ranges of the Allegheny mountains within the boundaries of Pennsylvania, formed insurmountable obstacles, which did not exist in the neighboring states, was generally received. No facts, however, had been disclosed, which proved this popular belief to be correct. One cause of this delusion may be traced in the circumstance that the greater part of the travel through Pennsylvania, between the East and West, passed along the southern Turnpikes, either to Baltimore or Philadelphia. The barriers upon the Chambersburg route particularly, were well calculated to cause unfavorable impressions upon the minds of stage coach travellers.

When we project a railroad route, through an extensive country intersected with mountains, we cannot solve this question by simply running ahead with the compass, chain and level. The engineer who is charged with this task, will, before he can enter upon details, have to take a general view of the whole mass of country before him; he must examine its geological features, as far as the configuration of the surface is concerned, and trace its connection with the water courses as now existing; he must, in fact, study the history of the surface of the country before he can be prepared to locate.

In the formation of the surface of our globe two agencies have been mainly at work, fire and water. In other words, the present configuration of the earth's surface has principally been formed by volcanic upheavings, and by abrasion or reduction, caused by the action of water descending from a higher level to a lower.

The Alleghenies, as well as other mountain ranges, owe their elevated position to volcanic action. The upheaving forces were, in the case of the Alleghenies, more powerful East of the main range, than West. We observe a very distinct difference between the geological features of the East and those of the West. All those numerous ranges situated East of the Allegheny ridge, show marks of a much more violent volcanic action, than those West. In the East we discover none of the strata in their original position in which they were formed; they are violently thrown up, occupying all inclinations, from a level to a vertical position, some reversed. The country west of the Allegheny, shows no marks of the same violence; the forces which there operated acted more gently, and without bursting their fetters. The strata are there found in a position not varying much from the horizontal; the dip, or inclination is more uniform and gradual. The general slopes of the countries bordering on the Alleghenies, are, therefore, the result of volcanic action, they commence

at the ocean, and become more abrupt as they approach the mountain. There is no doubt that the whole country, west of the Alleghenies, presented at one time a gradual and uniform slope, falling gently off towards the Mississippi, which in those days formed an arm of the sea. The greater heat of the globe's surface, and the greater humidity of the atmosphere, in that period, caused more copious discharges of rain; these waters would, in their descent from the higher regions to the lower, collect into channels, which in course of time wore deeper and deeper. Such is the origin of our rivers, creeks, runs, hollows and drafts. What are now small insignificant rivulets, running dry the greater part of the season, along the bottoms of deep valleys, extensive ravines and hollows, were, in those days, large streams and mountain torrents, sufficiently powerful in their descent, not only to excavate earth and loose materials, but also to move along large masses of rock.

The valleys included between mountain ranges, as, for instance, the valley of Ligonier, between the Chestnut ridge and the Laurel hill, and the valley of Somerset, between the latter and the Allegheny mountain, formed at one time *lakes* without any outlets. The discharge of those lakes over the crest of the barriers where they were lowest, wore out channels, which in course of time became mighty cataracts. Those large gaps which we now see in the Chestnut ridge and Laurel hill, and which still serve for the discharge of the waters of the Black Lick, Connemagh and Youghioghenz, are the result of that mighty process of nature.

The counties situated west of the Chestnut ridge, presented at one time, as was mentioned above, a uniform level, slightly descending towards the west, in fact such slopes as are yet to be found this side of the Rocky Mountains. As time passed on, the waters made their marks more distinctly. Deep channels were formed, and the action of copious rains continued to wash off the ground, and the face of the country was gradually transformed into a waving and broken surface.

The same causes by which those changes were wrought are still at work, but less violent. The mountains and other elevated portions of the earth's surface are continually reducing; what wears off serves to fill up the ocean, or to form alluvial bottoms.

That the country west of the Alleghenies formed at one time a uniform slope, has become certain to me, by comparing numerous levels during the course of my surveys. If extensive levels were run through the counties of Fayette, Westmoreland, Indiana and Jefferson, parallel to the Chestnut ridge, we should find the main dividing ridges, and ranges of hills, of nearly the same elevation.

The preceding remarks lead to that important conclusion, that in a country like western Pennsylvania, railway lines should, as much as possible, be located along the principle water courses and their slopes, which have been graded by nature on the largest scale. When we attempt to locate a line at right angles to these water courses, we will encounter great difficulties, and often be obliged to resort to steeper gradients, or heavy cuttings and embankments.

In consequence of a closer proximity of the ocean to the mountains, the discharge of the waters was much more violent in the east than it was in the west. This has rendered the mountain slopes, and the approaches much more abrupt on the one side than on the other. The same applies to the slopes of the Rocky mountains, which are precipitous and bluff on the western, but very gentle on the eastern side.

With the exception of the Allegheny proper, all the other mountain ranges which run parallel to it, from the north east to the south west, are broken by *gaps*, which present easy passages for the location of roads. The Allegheny mountain itself, forms one uninterrupted ridge, from the west branch of the Susquehanna in Pennsylvania, to the state of Tennessee. The distinct feature of this mountain commences near the West branch, which river has broken through it, and apparently takes its rise on the very slope of the Mississippi valley.

If the question was to locate a railway between the east and west, with the least amount of ascent and descent, regardless of distance, the waters of the West branch, in connection with those of the Allegheny, would present the only course which could be pursued. It is indeed to be regretted, that at the time the Pennsylvania canal was undertaken, no greater efforts had been made to establish an uninterrupted water-communication between the Ohio river and the Susquehanna. The surveys of Mr. Ayerigg have established since, that such can be done by connecting the headwaters of the West branch with those of the Redbank, streams interlocking each other.

Although the course of the west branch would have offered a good location for a continuous canal, it cannot be considered, when we have to establish a direct railway; the increase of distance by that route would be over 100 miles.

Next to the West branch we have only one more tributary of the Susquehanna, by which the Allegheny mountain can be reached. The Juniata river breaks through the whole group of mountain ranges, which traverse the country from the North East to the South West; its two main branches extend their ramifications to the very centre of the Allegheny range. South of the Juniata, we meet with no other leading water course within the state of Pennsylvania; we should have to proceed to the Potomac river, forming the line between the states of Maryland and Virginia, and along which the Baltimore and Ohio railroad from Harper's ferry to Cumberland has been located. The Columbia railroad and the Lancaster and Harrisburg road, being proposed as links on the Central road, Harrisburg will be the point of commencement of the new route. A straight line from Philadelphia to Pittsburg approaches Harrisburg; distance of the latter from Philadelphia 106 miles.

The Chambersburg route, which has been strongly recommended, presents obstacles to the location of a railroad with easy grades, which can only be overcome at a great loss of distance, and at a very considerable increase of rise and fall. While on the Juniata route we have only one single mountain to overcome, viz.: the Allegheny proper, we encounter on the other two more formidable barriers, Cove mountain in the East, and Laurel hill in the West. The former presents no gap north of the Licking Creek, (a branch of the Potomac,) and can therefore not be avoided. The Laurel hill may, on that route, be avoided by descending from the town of Berlin, which was made a point in Mr. Hague's survey in Somerset county, along the waters of Cartleman's river, and intersecting one of the locations of the Baltimore and Ohio railroad to Pittsburg. This, however, could not be effected without a further sacrifice of distance. The whole route from Chambersburg to Pittsburg has been so well examined by state surveys, that it would be a waste of time and expense to bestow any more pains upon it. That country will admit of a good turnpike at two and a half degrees, but of no railroad.

Since it is proved that the location of the eastern part of the Central railroad must necessarily be confined to the region of the Juniata, the scope for our surveys becomes at once contracted. Although the general sweep of that river falls considerably north of the straight line from Harrisburg to Pittsburg, it is still a fortunate circumstance, that its headwaters approach those of the Connemagh, and of the Black Lick. These latter water courses, on the other hand, coincide remarkably well with the general route to Pittsburg, particularly the Black Lick; and as they have forced a passage through the Laurel hill, as well as the Chestnut ridge, their slopes present an easy descent towards the Ohio. The general route of the Harrisburg and Pittsburg railroad must, therefore, necessarily be located along the courses of the Juniata and Connemagh, the Black Lick forming a branch of the latter.

The Juniata divides into two main branches, the Raysstown and Frankstown branch; it is only the latter which can be pursued.

By locating a railroad along the canal from Harrisburg to Pittsburg, and using the portage for crossing the

mountains, we should obtain a succession of very easy grades, and save the expense of constructing the mountain section. Three great objections, however, present themselves to this location: the circuitous windings of the Juniata from Lewistown to Hollidaysburg, the Portage road with its inclined planes, and the great loss of distance caused by following the Kiskiminnas and Allegheny river. I propose to consider these difficulties, and give a general description of the lines, as actually located. For minute details, I must refer to the reports of Mr. Schlatter.

The portion of the line from Harrisburg to Lewistown presents no difficulties; the general course of the canal is pursued, without interfering with it, distance 60 miles; grades vary from a level to 26.40 feet per mile. To cut off a great bend in the Juniata, this river is left at Lewistown, the gap in Jack's mountain is passed, and the valley of the Kishicoquillas creek pursued to the dividing ridge, which is formed between this water and Mill creek. The grades of this ascent do not exceed 26.40 feet per mile. The line then descends at a similar rate along Mill creek, towards Huntingdon. While the grades of the river route will vary little from those of the valley route, the distance by the latter is ten miles less. The comparison is altogether in favor of the Kishicoquillas route. See Mr. Schlatter's report.

The comparisons between the different routes were based upon an annual business of 60,000 through passengers, and 40,000 tons of goods. It will be acknowledged by all parties, that this is a very moderate allowance. Should the plan be carried out, which is here proposed, to form a continuous railroad to St. Louis, and place it under one general management, I should base the comparisons of future surveys upon an annual business of 300,000 through passengers, and 250,000 tons of freight. It would be an injustice to the road to allow less.

From the mouth of Mill creek the Kishicoquillas route is continued along the Juniata, through the town of Huntingdon, to Petersburg, at which place the Little Juniata empties into the Franktown branch. Thence the course of the Little Juniata which forms a gap through Tussey's mountain, and its slopes are pursued, until the summit of the Allegheny mountain is attained. At the break through Tussey's mountain opposite Dorsey's forge, the so called Stone Mountain route intersects. I will explain this line before I proceed with the other.

The Stone Mountain route which I have personally located, has on several occasions, and most severely but unjustly, for want of a proper understanding of the matter, been commented upon. I feel it due to Mr. Schlatter and to myself to explain. The features of that whole country, intricate and wild as they are, are clear to my mind; I have studied them thoroughly, and venture to say, that future surveys, if conducted by competent Engineers, will corroborate what I here do affirm, and what has been ascertained to be facts.

An inspection of Mr. Schlatter's map will show that the Kishicoquillas route forms an abrupt bend at the mouth of Mill creek. To cut this off, and to effect a further saving of distance of 11.23 miles, is the object of the Stone Mountain route. This line forms a succession of 45 feet grades, and is, for about one half of its distance, located over exceedingly difficult ground. A tunnel of 1.06 miles long through Stone Mountain, and several extensive and high viaducts\* become necessary. Against these works the principal objections have been raised but why, has not been explained.

If long tunnels and high viaducts are serious objections in themselves, then one half of the railways in England, and on the Continent of Europe must be pronounced flat failures, because they abound in these very features. Tunnels in those countries are not only resorted to from necessity, but more frequently for the purpose of straightening lines, saving a little distance and expense. High and extensive viaducts may be seen there, stretching across valleys, rivers, and even

over populous towns; the traveler delights to ride over them, as if through the air, knowing them to be just as safe as *terra firma* itself. They can be made perfectly safe, and should be made so at any rate. What serious objections then, remain to be preferred against the Stone Mountain route? None but that of greater expense of construction! This question, then, resolves itself to one of dollars and cents, and not of long tunnels and high viaducts.

In comparing the two routes, we have to estimate the expense of all items of first construction, repairs and gradual wear; we have to equate the gradients and curves, and value the expense of annual transportation. The merits of the two routes, after taking all things into consideration, are then to be represented by two sums of money,—the smallest is of course to be preferred. Any other mode of settling such questions must, in the present advanced state of civil engineering, be rejected.

By referring to the comparisons in Mr.

Schlatter's report, it will be found that the value of the Stone Mountain route is represented by the sum of

\$117,672

The value of the Kishicoquillas route,

111,160

Showing a difference in favor of the valley

route of, \$ 6,512

This means that the annual expense of the Stone Mountain route, considering all things, will exceed that of the valley route by \$6,512, and that therefore the latter deserves the preference. But by assuming an annual business of 300,000 passengers and 250,000 tons of goods, the comparison will turn out the other way, in favor of the mountain route.

It may be, that future surveys will establish that the expense of the Stone Mountain route has been underrated, and that of the valley route overrated; if so, a conclusion to reject the former may be just and correct. But until such facts have actually been established, or a still better route has been discovered, no hasty opinions should be expressed.

At Dorsey's forge, where the Little Juniata breaks through Tussey's mountain, the Kishicoquillas and Stone Mountain route intersect each other, both pursuing the same route in ascending the Allegheny mountain. While the Franktown branch, and the canal take a more southern course to Hollidaysburg, the Little Juniata on the other side, forms a gradual sweep towards the north. Following the route of the canal to Hollidaysburg, we gain but little elevation, and find ourselves suddenly at the foot of the Allegheny mountain, within a distance of only ten miles to the summit, and an elevation of 1400 feet before us. A graded road from Hollidaysburg to the summit, with a uniform ascent, would have to rise at the rate of 140 feet per mile. By following the Little Juniata, however, the foot of the mountain is attained at Logan's narrows, near the junction of the Bald Eagle creek, at a distance of 32 miles from the summit. This point is 889 feet above tide, the summit 2183 feet. The difference of elevation is overcome at a rate not exceeding 45 feet per mile. The summit is known as Sugar run gap, situated about two miles north of the summit of the Portage railroad.

Descending the Western slope of the mountain, we come to a point three miles from the summit, where two different routes diverge, one taking the course to Ebensburg and of the Black Lick, the other pursuing the slopes of the Connemaugh to Johnstown. I will first give a general description of the Black Lick route to Pittsburgh.

The descent to Ebensburg is by this route effected without serious difficulties; the valley of the Black Lick then offers a very direct course to Pittsburgh, and an easy passage through the Laurel hill and the Chesnut ridge; the Connemaugh river is crossed at the mouth of the creek. From this point a very direct course has been pursued through the counties of Westmoreland and Allegheny, by following the valley of Turtle creek, and of the Monongahela. Although the location from the Connemaugh to the head of Turtle creek is very direct, the topography of this country is very unfavorable to the formation of a graded road.

We have to cross three water courses, Spruce run, the Logathanna river, and the Beaver Dam creek, and a number of intervening ridges, which render this portion of the line very expensive. The grades are undulating to the head of Turtle creek, thence uniformly descending to Pittsburgh. By adopting the line as located a distance is saved, from the mouth of the Black Lick to Pittsburgh, over the canal between the same points, of twenty-nine miles. This location is the result of an extensive instrumental examination, which covered a large portion of Westmoreland county. The grades on this route are confined to 45 feet per mile; it appears, however, probable that the great magnitude of the trade, to be expected on the Central road, will justify a further expense to be incurred, for their reduction to 40 feet per mile. This can be done by increasing the excavations at the dividing ridges, and raising the embankments across the hollows. Comparative surveys and estimates, however, will have to decide this question.

The Connemaugh route, as was mentioned before, diverges west of the Allegheny summit, thence descending, the Portage railroad is crossed at plane No. 3. This road is again intersected at various places, and made use of for a distance of eight miles. From Johnstown to Blairsville the opposite side of the canal is invariably pursued. The Black Lick and Connemaugh route intersect each other four and a half miles west of Blairsville.

The measured distance from Harrisburg to

Pittsburg, by the Stone Mountain and Black

Lick route, is 230 miles.

Add distance from Philadelphia to Pittsburgh 106 "

Total distance from Philadelphia to Pittsburgh 336 miles.

Should the future surveys and comparisons be based upon such a tonnage as may be reasonably expected on this great route, there is no doubt they will result in a further saving of distance, and of rise and fall.

By pursuing the Pennsylvania canal and the Portage railroad from Harrisburg to Pittsburgh, the distance from Philadelphia to Pittsburgh is 338 miles; therefore 52 miles more than by the Central route.

The distance from Pittsburgh to the summit of the portage railroad, pursuing the canal route, is 130 miles.

Distance from Pittsburgh to summit by Central route, 93 "

Saving of distance west of the mountains, 37 "

Saving of distance on the eastern side, 15 "

Total saving, 52 "

In regard to the Connemaugh route, it should be observed that its interference with the portage railroad is a very serious objection, and of sufficient weight to reject that whole line. The two roads running in one for some distance, and intersecting each other at numerous points, cannot be worked with such regularity, as to avoid collision of trains. Indeed, the present system of working the portage would not at all admit of such interference; a daily occurrence of the most frightful accidents would be the inevitable consequence.

It has been suggested to abandon the location of the whole mountain route from Petersburg west, and to continue the road along the canal to Hollidaysburg; to use the Portage railroad to Johnstown, and thence pursue the Connemaugh route. The relative distances by this route would be as follows:

The distance from Petersburg to Johnstown by the Central survey is, 74.65 miles

I estimate the distance from Pe-

tersburg to Harrisburg by rail-

way, 28 miles

Add length of portage, 36 "

Distance from Petersburg to Johnstown by Portage, 64.00 "

Saving of distance by Portage, 10.65 "

If this is deducted from the distance of the Central survey, by the Stone Mountain and Connemaugh route, from Harrisburg to Pittsburgh of 237.13 miles; it leaves but a distance of 226½ miles; add 106 miles from Har-

\* The two highest piers on the Kishicoquillas viaduct are 130 feet, the others diminish as the slopes of the ravine ascend.



risburg to Philadelphia, and we get a total distance from Philadelphia to Pittsburg, by adopting the Portage, of 332½ miles.

Adopting the Portage route, there would be saved the construction of 46½ miles of new road, which, when finished with double track, and assuming Mr. Schlatters estimate, would cost at the rate of \$55,000 per mile, or \$2,557,500

By substituting 28 miles of road along the canal from Petersburg to Hollidaysburg, in place of the route along the Little Juniata, there will be a saving of about \$8,000 per mile, or 224,000

Total saving, \$2,781,500  
Allow for improving planes and machinery on the Portage \$35,000 per plane, 250,000

Leaves a saving of, \$2,431,500

It would therefore appear that the adoption of the Portage railroad, is an object of the highest importance, and should be accomplished, *provided the planes of the Portage can be worked with perfect safety, and without any delay.* On this subject I have already expressed an opinion, in answer to a letter which was addressed to me by S. W. Roberts, Esq., and which has been published since in the U. S. Gazette. Some further reflections, however, prompt me to add a few more remarks.

If the question: "can the Portage road be worked as expeditiously and safe as any other road," cannot be answered satisfactorily in the affirmative, the idea of using this road as a link in the Great Central route, should be at once and peremptorily rejected. If this road was adopted, and accidents should occur on the inclined planes, travellers would rather prefer to go by a longer and more expensive route, than risk their lives on the Central. But if the Portage can be worked with safety and expediency, its novelty and remarkable operation would, on the contrary, add to the attractions of the route, and cause travellers to prefer it.

In my letter to Mr. Roberts, I recommended to relay the planes with good heavy rails, and put down fenderbeams, for the purpose of preventing the running off the track of the cars, as well as of the safety. Fenderbeams and heavy rails will, at the same time, admit of such important improvements in the construction of the *safety car*, that trains will be stopped gradually, but with unerring certainty, in case the ropes break. The action of the *safety* now in use, and in the present condition of the road, is always prompt, provided it is not jerked off the track when a rope breaks; to guard against this is one of the objects of the fenders proposed. The great expense of ropes, and the danger of their breaking, has been very materially reduced since the introduction of wire in place of hemp.

By combining, however, the improvements above suggested, with a system of working which has been but recently introduced, and in successful operation for the last year on the steep and long planes of the so-called *Black Track*, and on the Wilkesbarre planes of the Lehigh improvements, we shall not only be able to work the planes of the Portage with perfect safety, but also without any delay whatever; and to accommodate the same amount of traffic which can be passed over a graded road.

The success of the Lehigh mode of working, is principally owing to the use of *tender cars*, one on each track, permanently attached to the end of the iron straps which are there used in place of ropes, the latter working reciprocating, instead of endless or circulating. There may be either one single rope working both planes, as now arranged on the Portage, but omitting the sheave at the foot or two independent ropes, as is the case on the Lehigh.

A tender car is so constructed that upon reaching the foot of the plane it contracts in width, and proceeds upon a railway laid inside of the main track, and descends low enough to allow the train of cars to pass over it. The object of the *tenders* is to push up or to let down trains of cars, thereby saving all hitching, and

avoiding all delay. By means of *turn outs* at the head and foot of planes, an approaching train is run upon that track, which has the tender car ready for reception. Trains are not allowed to stop on their arrival at the head or foot of a plane. When arrived at the head of a plane, the machinery is started, as soon as the train touches the arms of the *leader car*, and so it goes down. On the approach of a train at the foot, the attendant pulls the wire connected with the signal bell at the head, the machinery is started, the *tender car* comes out of the pit in the rear of the train, and pushes it up. The *safety*, in use on the Lehigh, would not be applicable to the Portage; the one now in use on the latter has to be modified, and is to be permanently attached to the tender car. There is no difficulty in the arrangement of these details.

On a recent visit to the Lehigh works, I had an opportunity of witnessing the operation of the planes, and can state that they work perfect. The machinery is powerful enough to take up sixteen empty cars at once, on an inclination of 1 in 3½. The planes on the Portage only rise 1 in 10.

Edwin A. Douglass, Esq., the Chief Engineer of the Lehigh Company, accompanied me to the Portage, for the purpose of witnessing the operation of the wire ropes there in use. After observing the present slow and imperfect mode of working, he strongly recommended the introduction of the *tender car*. The great experience of this gentleman, in matters of inclined planes, entitle his opinion to the fullest confidence.

With the introduction of the *tender car* on the Portage planes, the steam power strength of machinery and *adhesion* should be increased, (most of the foundations being new and strong enough,) so that wire ropes of two or three times the strength of those now in use, can be worked, for the purpose of passing whole trains, with locomotive and all, at one time without dividing them; thereby saving all horse power, hitching and unhitching, and avoiding all crowding of cars on the road. The Hollidaysburg grade of 52 feet per mile, limits trains to fifteen cars average, with the engine now in use; it will therefore be good policy to work light locomotives and small trains. Locomotives in ascending planes, will take up their own weight, when the rails are in a good state.

With such arrangements, and an active and intelligent superintendent, the Portage railroad can be worked as fast, or nearly as fast, as any other graded road, and without the least danger. Three hours will be enough time for a passage from Hollidaysburg to Johnstown, a distance of 36 miles. Freight trains should be passed day and night; passenger trains may be so arranged as to cross only in daylight.

In order to accommodate the canal business, in conjunction with the business of the Central road, and without any confusion, a telegraph line should be established between Hollidaysburg and Johnstown.

It would appear desirable, before the use of the Portage as a link in the Central railroad is decided on, to apply the arrangements here recommended, to the Schuylkill plane, (which is generally worked much slower than the Portage planes now are,) and thereby give the public an opportunity of witnessing the operation.

An amalgamation of the Pennsylvania canal and of the Central railroad has been advocated by some, on the ground that the two improvements combined, and under one management, in place of competing with each other as rival lines, would assist and sustain each other. That such an arrangement would prove highly beneficial to the community at large, is not to be doubted; the question, how this may be effected, I leave others to decide.

In conclusion, I may yet remark, that the completion of the Central railroad will, like a great national event, form one of the most remarkable epochs in the history of Pennsylvania.

For some years past has this important project been allowed to sleep; the prosecution of rival works has caused its revival, and the infant project is now rapidly rising into favor. It needs, however, nourishing. great

attention, and sacrifice; but, if properly developed, it promises to return a hundred fold the cares bestowed upon it. Its future extension should be westward, to those distant regions which, even now, are ready to pour their rich treasures into our lap.

Like the New York canal, when it opened those vast and immense resources to the City and State of New York, the Great Central railroad is destined to become the future highway of an immense traffic, not ephemeral in its nature, but most stable and permanent. It will vastly contribute to the wealth of Pennsylvania, and place the future prosperity of Pittsburg and Philadelphia upon a basis which cannot be shaken.

Pittsburg, January, 1847.

#### Railroad Mania in Germany.

The mania for the construction of railroads which possessed England, seems, in a commensurate degree, to have taken possession of Germany, and the conduct of the Prussian Cabinet has been such as not only to advance this feeling, but to give it a changefulness that has been very detrimental to the interests of the people. Cabinet orders have placed certain railroad operations in a most enviable position for awhile, but a capricious repeal of the orders took away in a moment all the advantages of appearing to be a government stock, which the orders had imparted. The slow moving Germans have been startled from their even paced progress, and under the forcing system of the mania have so far departed from their usual safe methods of proceeding, as to invest such large sums in railroad stock, and to lock it up for years to come, that commerce is feeling very seriously the effect of the withdrawal.

The following summary statement of the financial position of the empire will afford a good idea of the difficulties that are to be met and overcome. That they will be, we have no doubt; but it will be many years before an even course of affairs will bless Germany. When it does come, however, the reward will be worth the pain of obtaining it.

"If we inquire the amount of capital already invested in this class of industrial undertakings, we shall find that during the last eight years a sum of £36,000,000 has been employed, in opening 3880 miles of railway communication. Of this sum, somewhat more than that has been furnished by the several governments, for the construction of State lines. The sum still needed, within a period of five years, to meet the liabilities of lines 2300 miles in extent, now in course of formation, is, in round numbers, £37,500,000. We thus arrive at a total of something less than £75,000,000 sterling, which, within a period of 13 years has been, or will be, converted into that species of public security which we call railway stock. We must further bear in mind that of the sum of £37,500,000, one-half is to be provided out of government funds; and being spread over a period of five years, would leave an annual sum of about £5,000,000 sterling, to be covered from the respective budgets of the different States, and a like sum to be furnished by private capitalists.

"Let us now glance at the collective population, budgets and national debts of the German States, (including, of course, Austria,) and we shall find that the number of inhabitants is about 60,000,000; the annual State expenditure about £56,000,000 sterling, and the general funded debt of Germany may be set down approximately at, about 1,000,000,000 of thalers, or £150,000,000 sterling. The bare consideration of these respective items, is sufficient to impress us with a sense of the magnitude of a crisis like the present, in a country where the monetary relations want that elasticity that results from our banking system. But we are very far from despondency, when we consider that the average rate of interest in Germany, on good landed security, is but four per cent., and that the returns of railway profit on all the German lines, 19 in number, up to the close of 1844, gave an average dividend of 4½ per cent. on the capital invested, with the gains steadily increasing."

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring M.I. and  
Valley, } Pig Iron.

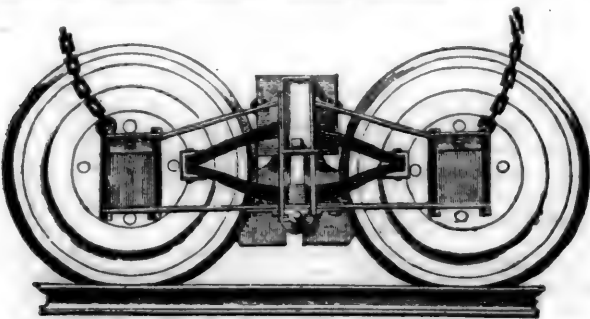
Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**  
59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [1y4]

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN,** Agent,  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10:39

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by  
**JOHN W. LAWRENCE,**  
149 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
11	4 1/4	13 5	10	24 -	50	15-16	20	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/4	6 11	7 1/2	12 8	17	9-16	10 1/2	
15	2 3/4	5 9	6 1/2	9 4	13 1/2	1-3	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROZ, Supt of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845.

**N. Jersey Railroad and Transp. Co.**

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] **JOHN LEACH,**

Jamaica November 12, 1845.

1y19 Sup' Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and decupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitation in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GORKE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 3d of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 31st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 130 Meeting street Charleston, S. C.

16 11

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

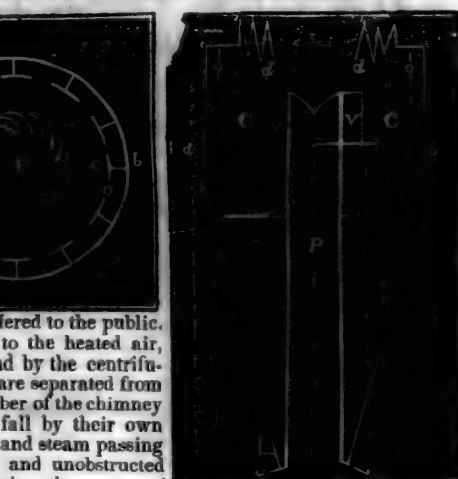
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 245 Paterson, N. J., or 60 Wall street, N. York.



**PATENT RAILROAD, SHIP AND BOAT SPIKES.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

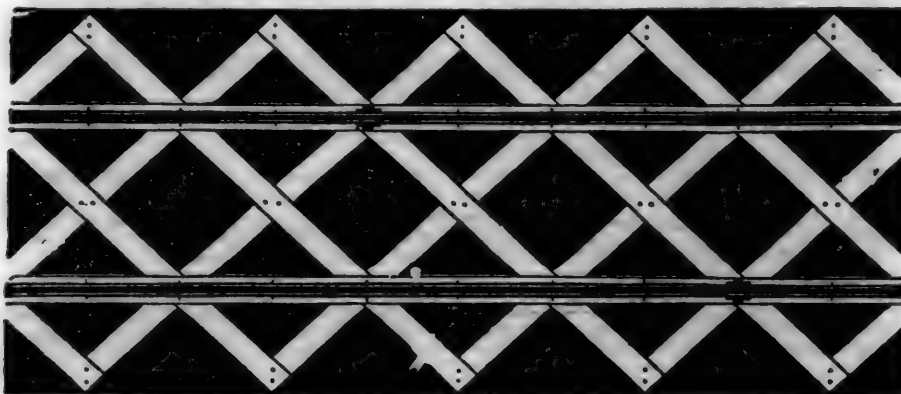


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10f

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 3½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing spring pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,934 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33f

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.

No 23 Pear street,  
ly10 near Third, below Walnut,  
Philadelphia.

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**  
Patentee.

ly25 28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**  
THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**  
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**RAILROAD IRON.—THE "MONTGOMERY"**  
Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

ly48 77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

Nov. 16, 1846. 46f

### ENGINEERS and MACHINISTS.

**THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)

**J. F. WINSLOW,** Albany Iron and Nail Works Troy, N. Y. (See Adv.)

**TROY IRON AND NAIL FACTORY,** H. Burden, Agent. (See Adv.)

**ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J. (See Adv.)

**S. VAIL,** Speedwell Iron Works, near Morristown, N. J. (See Adv.)

**NORRIS, BROTHERS,** Philadelphia Pa. (See Adv.)

**FRENCH & BAIRD,** Philadelphia. (See Adv.)

**NEWCASTLE MANUFACTURING COMPANY,** N. Y. Newcastle, Del. (See Adv.)

**ROSS WINANS,** Baltimore, Md.

**CYRUS ALGER & Co.,** South Boston Iron Co.

**SETH ADAMS,** Engineer, South Boston.

**STILLMAN, ALLEN & Co.,** N. Y.

**JAS. P. ALLAIRE,** N. Y.

**PHOENIX FOUNDRY,** N. Y.

**ANDREW MENEELY,** West Troy.

**JOHN F. STARR,** Philadelphia, Pa.

**MERRICK & TOWNE,** do.

**HINCKLEY & DRURY,** Boston.

**C. C. ALGER,** Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 11]

SATURDAY, MARCH 13, 1847.

[WHOLE No. 560, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7 1/2 a.m. and 3 1/2 p.m., and Providence at 8 a.m. and 3 1/2 p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5 1/2 p.m., and 10 1/2 p.m. Leave Dedham at 8 a.m. and 4 1/2 p.m. Stoughton trains, leave Boston at 11 1/2 a.m. and 4 10 p.m. Leave Stoughton at 8 a.m. and 2 1/2 p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.  
**BRANCH RAILROAD AND STAGES** Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I. Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and \$3 00	
" " Reading, 58		2 25 and 1 90	
" " Pottsville, 34		1 40 and 1 20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81y

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 3 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 351y

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

SPRING ARRANGEMENT, March 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7 1/2 A.M. and 2 1/2 P.M.  
Leave Portland at 7 1/2 A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 4 1/2 P.M.  
Leave Great Falls at 6 1/2 A.M.

### HAVERHILL TRAINS.

Leave Boston at 11 1/2 A.M. and 5 50 P.M.  
Leave Haverhill at 6 1/2 A.M. and 4 P.M.

### READING TRAINS.

Leave Boston at 9 A.M. and 8 P.M.  
Leave Reading at 6 1/2 A.M. and 1 1/2 P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7 1/2 A.M., 2 1/2, 5 50 P.M.  
Leave Medford at 6 1/2, 8 A.M., 11, 5 1/2 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Super't.

**SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE,** from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—  
Leave New York at 7 A.M. and 4 P.M.  
" Middletown at 6 1/2 A.M. and 5 1/2 P.M.  
FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—  
Leave New York at 3 P.M.  
" Middletown at 12 M.  
The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 if

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 10 a.m., and 4 1/2 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1 1/2 p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4 1/2 p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't. 321y





**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles  
Macon to Atlanta—Macon and Western.....101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods to be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100 lbs.	35
Crockery, per cubic foot.....	0 15	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$31 00  
" " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1v14

STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearings and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.** AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostanaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

	Between Augusta and Oothcaloga, 250 miles.	Between Charleston and Oothcaloga, 255 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 25
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 37½	0 62½
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
Engineer and General Superintendent. 2f

**LITTLE MIAMI RAILROAD.—OPEN** TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon...\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
W. H. CLEMENT, Supt. 47f

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent. 1y25

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by DAVIS, BROOKS & CO., Jan. 2. [14f] 68 Broad St., New York.

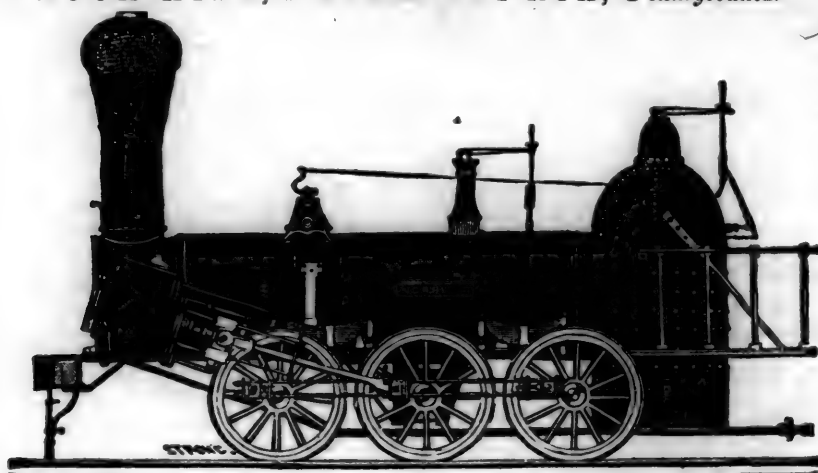
**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	"	× 24	"
"	3,	14½	"	"	"	× 20	"
"	4,	12½	"	"	"	× 20	"
"	5,	11½	"	"	"	× 20	"
"	6,	10½	"	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by

A. & G. RALSTON  
Mar. 20tf 4 South Front St., Philadelphia. 38tf

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x33 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja47

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Items from late English Papers.

**Legal and General Life Assurance Society.**—Having on so many former occasions called the attention of our readers to the increase of institutions for securing to the community the advantages of life assurance, and having ever endeavored to impress upon the mind the incalculable benefits which arise from its legitimate application, we need offer no apology for now calling attention to the above society, which has been established 10 years, and which has just arrived at the time appointed for making its first division of profits among the assured. At this, the commencement of a new period, the directors have determined to make some considerable alteration in the terms of assurance to which they had hitherto adhered, and considerably to extend the advantages commonly allowed to policy holders, convinced that they might be very much increased and enlarged with great benefit to all parties concerned. In all future assurances effected with this company, the age of the life of the assured will be admitted at the time of issuing the policy—so that the difficulties and delays occasioned by proving the age after death will be avoided. Individuals assured in this office will be allowed to pass by sea between any two places in the same hemisphere more than 33° from the equator, and to reside in Canada, New South Wales, Cape of Good Hope, Madeira, and any other place more than 33° north or south latitude. If an assured commits suicide, and the policy is vested in another, the money will be paid the same as on a usual policy; if by the party assured, a sum will be returned to the survivors equal to the entire amount of premiums paid; and in case of death by duelling, or by the hands of the law, the amount of the policy will be also paid. The benefits, to be attached to future policies, have been extended to all existing policies. These are certainly advantages: and their concession shows that the directors are men of business, fully alive to the change which is gradually taking place in the principles which hold society together, and that they will rather anticipate, than be behind in the great march of liberality and enlightenment.

**The Thames Economical Steamboat Company.**—Among the numerous undertakings for the investment of capital, which the year 1847 is likely to see brought before Parliament, is the above, formed for establishing safe, convenient, and economical steam communication from London bridge, both up and down the river, upon an equalized scale of fares, in proportion to the distance each passenger may have to go. Steamboats of the most approved construction will be built, and so arranged, that while they afford relief from a hot summer, shelter will be afforded from rain, and plenty of cabin room provided. A peculiar feature in the prospectus, and one which we think bids fair to place the company in a first rate position, is the construction of powerful barges for the conveyance of heavy merchandize to and from the various vessels lying in the river, docks, quays, warehouses, etc., which barges will be built on such a principle, that they can be employed

as steam-tugs, for the purpose of towing heavily laden barges, etc., to all parts of the river. In this portion of the business, we observe they are already patronized by a very large number of merchants, factors, boatbuilders, wharfingers, etc., on the river; 150 of whom have already expressed their intention of supporting the company, on such suggestion being carried out. It is, therefore, proposed immediately to construct 15 boats for these purposes; and the engines will be on Mr. Fell's patented principle for the generation of steam, by which one fifth of fuel is saved, and it creates an immense power in a few minutes, without the least danger of explosion. The capital is to be £200,000, in 40,000 shares of £5 each, and each shareholder is to receive free passage tickets to the full amount of his subscription. A well regulated system of fares, according to distance, will, most probably, in connection with commodious boats, be an attractive feature in this scheme; but, there is no doubt, that the steam barges will pay well, whether used as vehicles of carriage or as tugs for other barges; and it is evident that merchants, lightermen, and others, will find it to their interest to employ them, from the immense saving which must result to them in the time occupied in the transit.

**Miners' Strike, Hours of Labor and Remuneration.**—We have received a letter from a correspondent, who signs himself "A Colliery Bailiff," dated West Bromwich, in reference to the contemplated strike of the miners of the South Staffordshire district for a reduction of the hours of labor, for which notice was given a fortnight ago. The writer points out very clearly and sensibly some of the evils of these "turn outs," and the nature of the occupation and remuneration of those who are employed in the working of coal mines. We give the statement as it has been sent to us, without, of course, being able to vouch for all the particulars therein stated. He says: "In working the thick coal mines there are two sorts of workmen, viz: pikemen or fletters, who work by the piece or stent, and bondmen or loaders, by the ton or day. The pikemen have to cut a certain portion, according to the seams or measures, for a day's work of 5s.; and it is very common for them, in the space of eight or nine hours, to cut from one and a half to three of these portions or stents, or so many times 5s. and the bondmen, when working by the day, from 6 a.m. to 6 p.m. with meal time out, have 5s. 6d. per day, and when by the ton, will get from 7s. to 8s. Each man in the pit is allowed two quarts of drink per day, and one ton of coals per month. Pikemen seldom work more than three turns in the week, and the bondmen four days, thus taking their own time for recreation, on which plea a strike is called for. It is with difficulty that they can be got to work even this time; since their wages have been advanced to the present prices, there is less work done; and it is a lamentable fact, that these useful men, instead of devoting their attention and a portion of their time to their domestic and social improvement, spend it in drunkenness, gaming, dog fighting, pugilism and such like,

which are more injurious to the constitution than the gases in the mines. With respect to the unhealthiness of their occupation, it is the general opinion that colliers are less liable to disease than mechanics, and there numbers in this district who have attained a good old age. Those gases which are most injurious are seldom lodged in the working part of the mines, where the ventilation is attended to, accidents and loss of life only occurring when they are recklessly entered into. Now as regards these strikes, they originate with some of the most idle and lazy, who scarcely ever work in one colliery many days, and are constantly going to and fro, until discarded by most. They then begin to agitate in clubs, lodges, etc.: and not the least of the evils which follow is the driving of the trade from the district, and the increase of poor rates, for as soon as the colliers leave off work they begin to beg, and leave their families to seek for themselves. The result of this state of things is a suspension of works, manufacturers unemployed, shopkeepers and householders obliged to pay advanced prices for coal; and to the coal master and iron master an increase of royalty, rates, taxes, etc., follow. This ultimately brings on a panic, such as followed the strike of 1842. It is to be hoped, that the steady and thinking portion of the colliers will ponder well on the consequence of the step they are about to take, and not be led away by the lazy or designing, who have their own objects to serve, and who would adopt any scheme rather than work for an honest livelihood.—*Birmingham Journal.*

**Iron Vessels.**—We must not forget the very important improvement in the introduction of iron from the destruction of vessels, which enables us to combine lightness and elegance of form with strength and durability. For this valuable addition to marine architecture, we are indebted to Aaron Manby. In 1820–21 he constructed at Horseley, near Birmingham, a wrought iron boat, called the *Aaron Manby*, 120 ft. long and 18 ft. beam, and when laden drawing 3 ft. 6 in. water; it was propelled by Oldham's feathering paddle wheels, worked by a single engine of 80 horse power; and was built for the purpose of plying on the river Seine. The boat was completed in 1821–22, and was navigated across the Channel by the present Sir Chas. Napier, who was deeply interested in the undertaking; it was not only the first iron vessel that ever made a sea voyage, but also the first that conveyed a cargo from London to Paris direct, without transshipment. She continued plying between Paris and Havre for several years, until superseded by other more powerful and improved boats: the hull is yet in existence, and is still used with new engines on board, as are three others, which were built about the same time. In 1831 Maudsley and Field built four iron vessels for the East India Company, for the navigation of the Ganges, and fitted them with oscillating engines, of the united power of 60 horses; they were 120 ft. long, 24 ft. beam, and drew 2 ft. water; they were so successful that six more were ordered shortly afterwards. The

use of iron, however, did not make much progress until recently, on account of the prejudices and obstacles which generally, if not invariably impede the progress of all great inventions. At present, iron is much employed for vessels, and promises in many cases to supersede timber. Objections against its general employment have been urged, on account of the bottoms of the vessels being liable to become foul on long voyages; and for the purposes of war, the splinters of the iron when struck by shot are said, from recent experiments, to be more detrimental than from wood. The art of building iron vessels is, however, in its infancy; and it is very probable that further experience and investigation will, in a great measure, obviate the evils. The strength, lightness, and other qualities that have been mentioned, give it great advantages for the construction of fast sailing passage vessels; and the water-tight bulkheads constructed with it, give great additional security in case of accidents; these water-tight bulkheads are now almost universally adopted; but the precise date and origin of their introduction is not very clear. Captain Evans, of Holyhead, proposed them for timber vessels in the year 1826, and soon after that time they were used in an iron vessel constructed by Grantham for C. W. Williams, Esq. Examples of their importance have frequently occurred, demonstrating the necessity of their introduction into all vessels, whether for river or sea navigation.—*Sir John Rennie.*

**Hemp and Flax Manufacturing Company.**—We have on various occasions noticed the measures which are being taken for the re-establishment, on a more extensive basis, of the company, formed some years since at Rugeley, in Staffordshire, for the manufacture of hemp and flax of all countries, under an entirely new process, patented by Mr. Doulan. Although extensively advertised, the greater number of the shares are taken up by parties connected with the existing company: the business generally has been arranged and managed by J. Simpson, Esq., of 25, Moorgate street; and it may now be said to be brought to a successful issue, as applications have been made for a much larger number of shares than was originally contemplated, and the allotment is expected to take place in a week or ten days. The invention is one of considerable importance, as establishing the manufacture of an article far superior to any previously produced; and which, while it reflects the greatest credit on the inventor's ingenuity, has so far, and is likely still more so, under the employment of an extended capital, to make an ample return for the investment.

**Solders for Brass and Copper.**—The *Dictionnaire Technologique*, a French work of great value in the arts, recommends the following mode of making solders for brass. Two kinds of solders are used for this purpose, the hard and the soft. The hard is made in the following way: take 16 parts of brass and 1 of zinc, melt the brass in a crucible, and also heat the zinc. When the brass is melted the zinc is thrown hot into

the crucible, which is then covered, and the whole well shaken together. In about two minutes, pour the metal through the twigs of a birch broom, placed over a proper vessel of water. The metal by this process is divided into small grains, after which it is well washed and kept for use. The proportions may vary from those given to two parts of brass and one of zinc. A *hard solder* for copper is made by the above process, only substituting copper for brass in the proportion of eight parts of copper to one of zinc. This makes quite a fusible solder, which is at the same time malleable; ten parts of copper and one of zinc make a harder but less fusible solder. The *soft solder* for brass is made of six parts of brass, one of zinc and one of tin. The brass is first melted, the tin is then added, and lastly the zinc, which last metal should be first well heated, then shaken and divided as above directed.

**Mineral Wealth of England.**—In the course of a lecture delivered yesterday to the general classes of King's College, by Mr. Tennant, on mineralogical geology, the lecturer stated that the annual value of the mineral produce of England amounts to about £25,000,000. Of this 9,000,000 is from coal, 8,400,000 from iron, 4,200,000 from copper, 920,000 from lead, 400,000 from salt, 390,000 from tin, 60,000 from manganese, 35,000 from silver, 22,000 from alum, 8,000 from zinc, and 55,000 from the various other metals, as antimony, bismuth, arsenic, etc.—*London Times.*

#### Ventilation of Coal Mines.

The vast importance of a system of perfect ventilation being applied to our collieries, and the positive proofs which the late fearful calamity at Oldbury, with the almost countless explosions which have preceded it, give us that the present methods of working coal are founded in error, render every suggestion worthy of notice, more particularly when it comes back by long experience and scientific acquirements. We have received a pamphlet from the pen of Mr. B. Gibbons, of Shutend House, near Dudley, dedicated to Philip Williams, Esq., a magistrate of Staffordshire, and an extensive proprietor of mines—in which the author, we verily believe, approaches nearer to the great desideratum than any of the numerous, but futile, plans, which have been so often paraded before the public, but which have proved to be as far as ever from a correction of the evil. Written in an unassuming and intelligible style, the author takes the hourly operations of Nature for the basis of his system, common sense for the means of application, and explains his premises with this homely illustrations which all may understand. First, ascertaining the cause of the generality of these alarming accidents, and the insufficiency of the present means of ventilation, to keep up constantly and in one direction the necessary current of air, he suggests a remedy founded on the most simple, yet scientific, laws, and which we shall now endeavor to explain to our readers. To show the difficulties in an attempt at the removal of local prejudice, he says, that when he first descended the thick coal pits, 45 years

ago, he found the gate road and the air head driven side by side on the floor of the mine: it struck him that this must be wrong; and, after much patience, and more by authority than persuasion, he succeeded in raising the air head so much, that the bottom of it was on a level with the top of the gate road: since that period he has climbed 6 ft. higher, or about the middle of the coal, and he still hopes to get to the top. By this method he has succeeded in opening the coal—so that it is now perfectly free from gas in every part of the workings. Having shown that the quantity of air for the supply of men, horses, and candles, should generally greatly exceed 40 cubic feet to one of carburetted hydrogen evolved, he protests, *in limine* against all artificial means of obtaining ventilation, whether by air pumps for forcing air in, or exhausting pumps for drawing it out, or even the furnace at present so generally in use, which, however, in some cases, may prove an useful auxiliary; but he deprecates all power which is not self acting. We now come to the details of his plan. A colliery is to be established where the coal lies at the depth of 140 yards; the first step is to sink two round pits or shafts (say) 7 ft. diameter each, down to, and through, the stratum of coal, 30 ft. in thickness; the gate road, or horse way, is then to be driven in the bottom of the coal 9 ft. wide and 8 ft. high, commencing from the bottom of the downcast shaft. At the same time, or rather before, as it should always be a little in advance of the gate road, an air way is commenced for the upcast shaft about the middle of the coal, or 15 ft. high from the floor; this gate road and air way are then driven in parallel lines for 180 or 500 yards, according to the quantity of coal intended to be cleared, and spouts or openings are to be driven from the gate road upwards into the air way, at from 10 to 15 yards, according to the quantity of gas given out. Having arrived at the furthest point at which it is intended to get the coal, the gate road is driven at a right angle to its former direction, still accompanied by the air way; and, when it has proceeded 10 or 15 yards, to pass thro' a rib, to be left for the support of the road and air way, the excavation is stopped—the preparatory measure for making a side of work about an acre, or taking away the whole stratum of coal, then begins; and now we come to the important part of the system, which is to ventilate all these roads and headings, and a cavity containing more than 1,000,000 cubic feet of space, and also carry off all the gas incessantly issuing from the coal. The coal is now undermined, and dropped down in large masses, until 15 feet in thickness have been removed, when the air way is reached, up to which period the air has descended the downcast pit, travelled along the gate road, ascended to the air way, which it has traversed, ascended the upcast pit, and, carrying with it all the gas and vapors, delivered them into the open air. Having removed this 15 ft. of coal, the air way is no longer of use—in fact, no longer exists; and every cavity above becomes a reservoir of gas. In fact, it may be estimated at 400,-



000 ft. of hydrogen floating on the air beneath. He now shows that, if it were possible to bring the whole of this to the firing point at one moment, the consequences would be too fearful to contemplate; but as portions of the gas become sufficiently charged with air, explosions follow in succession. To overcome the danger, a current of air must be compelled to enter, and clear out every cavity formed; and this current must move in one and the required direction, and have sufficient force to overcome all extraneous forces, either of wind or change of atmosphere, copious enough to neutralize the gases produced, and leave sufficient for men, horses, and candles; but these conditions cannot be fulfilled under the present system, and, even if a sufficient current was obtained, it would be useless, so long as the up and downcast pits are used in working shafts. The upcast, which is the main air way, ought always to be closed from the external air, and guarded from disturbance, to prevent the slightest interruption to the current; it is however, often kept in constant commotion by the ascent and descent of skips loaded with coal, which nearly fill the shaft. A carriage, called the runner, is also drawn over the mouth at every landing of a skip, and thus completely cuts off the current; but when a rope or chain breaks, the skip rapidly descends, and forces the gas in the workings down upon the workmen's candles. Having completed the workings as far as described, a chimney, 60 to 90 ft. in height, is to be erected, and put into communication with the upcast shaft; the top of this chimney being in an atmosphere of much less density than that of the workings, or even at the surface, a certain, constant and self-acting draught is obtained.

The work contains some diagrams of different forms of shafts, by which one can be made available, having a recess of 4 ft. square on one side for the air chimney or upcast, which one man could carry down, and keep pace with the sinking, and cast iron cylindrical curbs, with a segment divided off for the air way for sinking in sandy strata. Mr. Gibbon has adopted the lofty stack, in connection with the upcast pit, for 25 years;—and which, to increase the draft, may be raised to 120 ft., and even higher; in every case he has been completely successful—the thick coal abounded with gas, but is now so completely drained, that all difficulties have vanished, and the men have no such thing as a safety lamp in his pits. A great improvement has taken place in their health; and in his King Swinford pits the air is generally 62° to 64° Fah.; while in neighboring pits under the old system, it is from 74° to 78°—the former the temperature of a comfortable sitting room, the latter that of a heated cotton mill. Here, then, is a system certainly new to us; but which, from the properties and laws by which the movements of the permanently elastic fluids are regulated, is evidently founded on scientific principles, and would, doubtless, in every case where prejudice did not intervene, prove as successful as in the author's. We most sincerely recommend his little work to the attention of coal own-

ers, and all interested in the rescuing so many thousands of our fellow-creatures from the dangers which surround them; and, though the author, much to his credit, has evidently published it not for sale, but for gratuitous distribution, we have no doubt but all connected with collieries would obtain one on application. We cannot close without one extract on a subject on which we have often animadverted—viz: the crying deficiency of being destitute of a Mining College. He says—“If these few observations should have the effect of quickening such a movement, I shall think myself richly rewarded by this alone, for the trifling trouble this little book has given me; I have endeavored to be brief, and my object has been to write in such language as will be best understood by all. I have felt myself called upon to point out the practical means which experience has disclosed to me, as best calculated to abbreviate (at least) the frightful list of suffering which humanity recoils from; I also felt that it was discreditable to a trade (containing in its ranks so many intelligent men) to realize before the world, the fable of ‘the Carter and Hercules,’ and, like the former, call aloud for that assistance from the government, which must at last emanate from themselves.”

#### Progress of Continental Steam Engine Manufacture.

The rapid strides which engineering science has made in this country, within the last 20 years, has raised a spirit of emulation among the principal mechanics in France and Belgium, to endeavor to approach, at least somewhat nearer to that superiority which has been here attained, and which, had it not been for the near-sighted policy which at one time prohibited the exportation of all machinery, would have established England as the machinery mart of the whole continent of Europe. Unable thus to obtain our engines, and which they could not imitate, hundreds of our best mechanical workmen were enticed by the engineers of France and Belgium, at exorbitant wages, not only to undertake the fabrication of engines on the English plan, but to instruct foreign workmen in their art; and it was this importation of British science into Belgium, that raised the fortunes of Cotterell, of Seraing. The English restriction was soon repealed; but the mischief had been done; for, notwithstanding the vigilance of the custom house, not only men, but models and castings to a large extent, continually found their way across the Channel. Among the most celebrated engine manufactories in France, are the establishments of Hallette, of Arras, and Schnieder, of Creuzot, who have gained their renown at the expense of British science and industry; and many of the most celebrated manufacturing engineers on the continent have Englishmen for their foremen and best artisans. From a report of M. Jobard, director of the Belgian Museum of Industry, made to M. Thieux, Minister of the Interior, after an industrial tour through the south of France and Switzerland, it appears that Mulhausen may well be termed Manchester in miniature; there are here several large works for the manufacture of

steam engines, principally on the expensive principle. One is a joint stock company, in which 600 men are employed, who turn out a locomotive engine every week, at a cost of £2050, while Ridder, of Belgium, charges but £1000. One of the three large stationary engines for the atmospheric railway, from Paris to St. Germain, was made at this company's works, one at Hallette's, and the third at Seraing. Mulhausen also contains numerous factories for tools and implements, and power cotton mills, employing a working population of 36,000 persons daily. At Thun and Zurich there are also very extensive factories of steam engines, particularly at the latter city, in which is the large house of Zocher, Weyss, & Co., who are famous for colossal water wheels, for applying to advantage the numerous water falls with which Switzerland abounds. These facts show the policy it would be for the continental governments to reduce the restrictions on British iron—a metal, the cheap and easy attainment of which forms the very basis of the progress of science. We have no doubt Belgium will be the first to set the wise example: of France we have no hope, until the people become aware of the cost of iron monopoly, and when absolute scarcity shall cause the pressure from without to force the repeal of the duties from a reluctant government—the tools of the ironmasters.—*London Mining Journal.*

#### English Iron Trade.

The correspondent of the *London Mining Journal*, furnishes the following remarks in regard to the Iron Trade:

Business commenced this year under considerable difficulties, arising from the tightness of the money market, which was experienced more or less in all parts of the world, especially in India—the demand from whence having been thus decreased, added still more to the depressing influence.

Iron, though not the subject of such extensive speculations as in the preceding year, has yet occupied a prominent position in the metal market, and sales, both for exportation and especially for home consumption, have transpired to a large extent. The price of rails in January last, was £12 10s. to £13, at which rate about 35,000 tons were sold; from a slight decrease in the demand, and the forced sales of speculators, the price fell £1 10s. to £2, until it reached £9 5s. to £9 10s., at which rate about 10,000 tons exchanged hands; it recovered about 10s., at which a sale of 20,000 tons for America were reported. Since which, the price has ruled £9 10s. to 9 15s., free on board; sales, some of which are of very great extent, are continually occurring at these rates, and makers generally are full of orders. The price is expected to go higher from this, as well as other causes, especially the difficulty of procuring coal, and the present scarcity of ore. Bar, though at times subject to a trifling depression from natural causes, has yet been well maintained by the incessant demand for home consumption; it is now held firmly at £9 15s. to £10 in London, and higher prices may be expected.—Scotch pig commenced the year at 80s. for No. 1, at which considerable business took

place; prices since then have continually fluctuated, but not to such an extent as to warrant any very extensive speculation: it has at times, it is true, receded as far as 66s. to 67s. 6d., but the general aspect was so uncertain that few could venture upon it; it has, however, within the last two or three weeks manifested such unequivocal symptoms of revival, that a better spirit seems to pervade the minds of dealers, sales at improving prices are constantly reported, and accounts from both Liverpool and Glasgow report the gradual and steady advance of rates. The article is extremely scarce in the London market. No. 1 may be quoted 76s. to 77s. 6d., mixed No. 74s. to 75s. cash. Should a reduction of the duty in France take place, which is highly probable, a fresh stimulus will be given to the pig iron trade. Welsh and Staffordshire pigs are in good demand, and makers generally are busy; several large parcels in speculators' hands have been sold for consumption.

#### Accidents on the Worcester Railroad.

A series of collisions took place on the Worcester railroad on Wednesday afternoon by which three or four persons were injured, four locomotives were disabled, and several cars smashed. The Albany train which had been delayed for some reason or other, came in contact with a gravel train which was backing up the track, and the engine of the former was considerably injured, though no person was hurt. The men on the gravel train, about 30 in number, all jumped off before the collision. Before he jumped off, the engineer of this train reversed the engine, but the force of the shock set it going again, and it started off down the track at full speed, ran a distance of 7 miles to the 35th mile post, without any one to guide it and then stopped just at a curve, where the 4 o'clock train from this city ran into it, not seeing it until about 100 feet from it. Both engines were considerably damaged. A message was sent to Westboro' to detain the steamboat train and another to Worcester, and Mr. Moody, depot master at W. immediately set to work to clear the South track, which has been undergoing repairs, and on which there were placed several freight cars to be out of the way.

As soon as matters could be cleared up, the steamboat train took the 4 o'clock train in tow and proceeded towards Worcester, with instructions to the engineer to proceed slowly and with caution, but just as it passed the bridge in Worcester, the speed having been increased, it came in contact with some of the freight cars above mentioned, which were on the track, sufficient time not having elapsed to enable the workmen to remove them all. Here the most melancholy part of this series of accidents, occurred. The engine and two of the passenger cars were much injured, and Mr. Flint, one of the road hands, was so severely hurt that he died of his wounds about midnight. Mr. Page of Methuen, a passenger, was badly bruised. R. K. Porter, brakeman on the boat train, had his leg broken, and several other persons were somewhat hurt. Mr. Dana, depot master in this city, left with a special train at 11 o'clock last night, carrying with him Dr. Winslow Lew-

is, but as there was no need for his services he returned immediately.

We learn from the Courier that the conductor of a freight train on the Western railroad, which left Worcester about two o'clock yesterday afternoon, fell from his train soon after starting, and was almost instantly killed by the concussion. The train immediately stopped, and before it could get out of the way an inward bound train came in collision, and both engines were much injured.

From the Portland Advertiser.

#### Androscoggin and Kennebec Railroad.

The organization of the Lewiston and Waterville Railroad Company took place at Winthrop on the 5th inst. It was undoubtedly the most numerous attended railroad meeting ever held in Maine, and the enthusiasm and unanimity that pervaded all its measures have been without any parallel as far as we have known, in relation to any similar enterprise.

The meeting for organization was appointed to take place at 1 o'clock in the afternoon of the 5th inst. But on the evening of the 4th, a numerous body of the stockholders from Bangor and several of the principal towns in Penobscot county as well as from Somerset, Franklin and Oxford, and a still greater number from Cumberland, Lincoln, and Kennebec were present.

An informal meeting of the stockholders was held at 9 o'clock A. M. of the 5th, and a full and very animated discussion was had upon the various questions coming before the stockholders.

Messrs. Boutelle of Waterville, Morrill of Readfield, S. P. Benson of Winthrop, Taylor of Fairfield, and Goodenow of Portland, were appointed a committee to prepare and report By-Laws for the action of the stockholders.

Messrs. Morrill of Waterville, Prescott of Farmington, Bachelier of Readfield, Small of Portland, and Brown of Portland, were appointed a committee to examine the subscription books, and make return of the amount of the stock taken in the several towns.

The committee on By-Laws made a report, in which they recommended, that the number of Directors be fixed at 9—the charter allowing the stockholders to fix the number at 7, 9 or 13.

A motion was then made to strike out 9, and insert 13. This gave rise to an animated discussion, in which Messrs. Poor, Little, Judge Preble and Goodenow of Portland, and Prof. Champlin and Mr. Boutelle of Waterville, G. A. Benson of Winthrop, and Taylor of Fairfield participated, and the amendment was adopted without a count, and the report accepted as amended.

The committee on the stock subscription then reported, that on the subscriptions returned, (two being absent) 8750 shares had been subscribed, and 5 per cent advance paid in. It was afterwards voted that the books be kept open during the day, and shares were subsequently taken up to a considerable amount.

It was then voted that the same committee apportion to the several counties their number of Directors, who finally reported that the Directors be taken as follows:

- 1 from Penobscot county.
- 1 from Franklin "
- 1 from Lincoln "
- 2 from Somerset "
- 5 from Kennebec "
- 3 west of the Androscoggin river.

The stockholders from the several districts, after they returned, named their candidates as follows:

Timothy Boutelle and Jedediah Morrill, Waterville; Samuel P. Benson, Winthrop; Lott M. Morrill, Readfield; Renben B. Dunn, Wayne; Josiah Prescott, Farmington; Samuel Taylor, Jr. Fairfield; John Ware, Athens; W. B. S. Moor, Bangor; Josiah Little, Jr., Lewiston; John Fox and William Goodenow, Portland; Hobart Clark, Andover, Mass.

The forenoon was consumed in a very brisk and spirited discussion of the various matters connected with the railroad, while the crowds of people who flocked into town during the forenoon, gave the streets the appearance of an 1840 mass meeting.

The stockholders were organized at Carr's Hall,

by the choice of Edward Little, Esq., of Lewiston, as Chairman, and John Goodenow of Auburn, as Clerk, and adjourned to the Rev. Mr. Thurston's Meeting House, which, in anticipation of their adjournment, had been filled to its utmost capacity long before the appointed hour. The By-Laws reported were unanimously adopted.

The committee having reported names for the thirteen Directors, a ballot was taken and 6204 shares were represented, and the gentlemen before named were severally elected, with scarcely a dissenting vote.

Mr. Moor, of Bangor then offered a resolution responding to the proposition or resolution adopted at the Bangor mass meeting, favoring an union at Waterville of the Androscoggin and Kennebec and Penobscot and Kennebec railroad companies, by which a continuous line of railway from Bangor to the Atlantic and St. Lawrence railroad should be secured. After a full and able speech from Mr. Moor, explaining the position of affairs at Bangor, and remarks from several other gentlemen, the question of passing the resolution was taken by rising, and carried by acclamation and without a dissenting voice.

Several gentlemen then came forward, asking permission to take further stock, and an exciting debate sprang up on the subject, while the subscription was going on.

#### Lamp without a Wick.

Few will hesitate to admit that if a lamp can be so constructed as to support a clear flame without the use of any wick whatever, it must be an important invention; and such is the principle of an invention, a description of which is given by the inventor as follows:—

"The fluid to be burnt is put into any suitable reservoir for holding it. This reservoir is placed above, and a little one side of the point where it is to be burnt. From this reservoir, there is to be a pipe, which is to project downwards and turned or bent out horizontal. At the end of this pipe there is to be a short glass tube set in. The top of this tube is enlarged into a cup-like form, and sets up perpendicular in it. The pipe which this is set into has a faucet valve in it, the same as in a gas pipe. This valve is to open and close the connection between the reservoir and glass tube. When the fluid is to be burnt, the valve is opened to allow the fluid to pass through it into the glass tube, up to its surface. It is now to be closed until the fluid in the tube is fired, when it is opened enough to allow it to pass through as fast as it will burn without smoking. By turning the valve it regulates the passage of the fluid to give more or less light, as in a gas pipe valve. The shape of the cup part of the tube may be of any suitable form, to give the air a free chance to combine with or support the combustion of the burning fluid, and of a size suited to the amount of light required.

"I have tried the principle with oil and it burns equally as clear and bright as with a wick, and will give any amount of light required; and I see no reason why it would not be an advantage, for it would be less work to keep them in order than lamps with wicks. It would be inconvenient to apply it to hand lamps; but where the lamps are fixed or stationary, as in street and light houses lamps, for which latter use it would be a good advantage, for the fluid could be conveyed through one main pipe to as many burning points as required, and give a given amount of light all night, if the reservoir be sufficient above the burning points."



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

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### MISSING NUMBERS OF THE RAILROAD JOURNAL.

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### TABLE OF AMERICAN RAILROADS.

We have at length completed our long-promised Table of American Railroads. The delay has been much longer than we supposed it would be; yet it will, we trust, be found the more complete by the delay.

By referring to the Table, it will be found to contain a mass of information difficult to be obtained elsewhere, in a condensed form.

The name of the road—its termini—the year when opened—its length—cost—the form and weight of rail—number of tracks—number of inclined planes—highest grade—least radius of curvature—fare per mile—commutation by the season—gross and net revenue and dividends for 1845—are given according to the most authentic documents within our reach; and, in addition, copious notes of reference, explanatory, showing the various connections, etc., are given.

Notwithstanding that much time and research have been devoted to this Table, we are fully aware that, in many cases, the facts—as they now exist—are not accurately given: as there is a constant and progressive change in the condition of most railroads. We therefore have to request each of our readers—and especially those having the management of railroads—to send us by mail, at an early day, the correction of any errors which they may detect in the table, that we may issue a second and corrected edition of it. A little attention and labor on the part of engineers and superintendents of railroads, will enable us to complete the work here commenced, and to furnish, to all who desire it, a mass of useful information, exceedingly difficult to be got at now, even by the most devoted friend of the cause—and we shall therefore keep the "form" standing for two months—thus giving ample time for—and in hope of—receiving returns from every part of the country.

### Opening of the Pennsylvania Canal.

The Pittsburg Gazette of 27th ult. says: "Should no untoward change in the weather occur, we understand that the canal commissioners have given orders to commence letting water into the Western Division on the 3rd or 4th of March. The process will doubtless be a very cautious one, as it is unprecedentedly early. The line is in perfect order, and a few days of drying weather would render it quite secure. Business will now commence in a few days, and we find our transporters all ready to commence operations."

### Railroad from Lake Michigan to the Mississippi.

A western exchange, in a lengthy article upon the subject of a railroad from Lake Michigan to the Mississippi river—holds the following language:—"The importance of railroad communication between the different sections of our country, is becoming more and more appreciated. The eastern cities are deeply interested in facilitating intercourse between themselves and the great western valley.—The opening trade with the west is but commenced. The tide of emigration towards those rich and vacant lands is constant; and millions of acres are yet to pour their harvest into the commercial emporiums of the east. The most expeditious channels of intercourse between the east and west will command the passengers and much of the trade. The great western railroad, extending from New York and Boston, will pass on the south shore of Lake Erie, thence across the peninsula of Michigan and round the head of Lake Michigan to Chicago. From this point is the only uncommenced or perhaps unsurveyed part of the route between the great lakes and the father of waters. The completion of a railroad from Chicago to the Mississippi, will consummate the connection between New York, Boston and New Orleans, by an expeditious inland route. The attention of eastern capitalists is invited to the feasibility and importance of this work. By an examination of the map of Illinois, it will be perceived, that directly west of Chicago, the Mississippi makes its great eastern bend, and approaches nearest the Lake. This is the easiest and most natural connection. It is not only the shortest, but the most practicable. It passes through the most beautiful and inviting part of Illinois—one that will require but little grading—settled by an industrious and thriving population, and affording every facility for making a road, and abounding in all the products of the northern and middle States.

A continuous railroad between Lake Michigan and the Mississippi may be made with comparatively little expense. The importance of this route is prospectively great. A railroad from Chicago directly west to the eastern bend of the Mississippi will concentrate to one point the northern and southern travel. It will not only greatly facilitate the intercourse between Iowa and the east, but by extending a branch north to Galena, following the grade of the Great Central road, the lead trade may be secured. With another extending down the Mississippi to Rock Island, and ultimately below the lower rapids, where the navigation of the river is uninterrupted for the greater part of the year, it will most certainly become the great channel of communication between the west and south and the eastern cities—embracing the most valuable and important sections of our country. Shall Boston or New York first adventure in this magnificent enterprise? Shall a large part of the Mississippi valley be thus brought into immediate commercial alliance with one part of the east? Great advantages may be secured—

who shall win them? The rival cities in this great enterprise are New York and Boston."

### Railroads, Bridges, the Canals, etc.

The extended and extensive business upon the Western Railroad, has induced the company to put measures in progress for increasing the capital to \$10,000,000 and lay a second track on the road.—This company has labored under serious disadvantages on account of the monopoly between Boston and Worcester, but this road has been exceedingly productive nevertheless. It would not be surprising if a majority of the stock of the Boston and Worcester should ere long be in the hands of the stockholders of the Western: such an event would materially enhance the value of the Western stock.

The Albany correspondent of the Rochester Democrat says the stock for the construction of the Niagara bridge is all taken. The capital is \$200,000. Half of it was subscribed in Canada and the balance mostly in New York and Philadelphia.

Contractors in Philadelphia and Pittsburg offer to build a good substantial bridge of wire for \$200,000. It will be 40 feet wide—the centre track for cars to connect with the Canadian road through to Detroit, and capable of transporting 300 tons over it at once, at a rate of 10 miles to the hour. There will be two tracks for carriages and a foot path. It will have three spans with abutments 200 feet high. It is supposed it can be completed in two years, which will make it ready for use by the time the Canada road is completed.

Ohio, Indiana, and Illinois are moving in favor of a railroad from St. Louis to the Ohio river. The Ohio Legislature offer the right of way free of charge. The City Councils of St. Louis have memorialized the Legislature of Missouri, for permission to subscribe half a million of dollars to the stock of a railroad to run from that city eastwardly to join such other railroads as may be distributed through the States of Illinois, Indiana and Ohio.

The silver greys are waking up to the importance of a railroad communication between Newburyport, Mass., and Lowell direct, via Georgetown, Bradford and Andover. The estimated cost of the road to Bradford (opposite Haverhill) is \$200,000, of which a large portion is already subscribed. At Bradford the road will intersect with the Boston and Maine railroad which passes through north Andover; whence a branch may be constructed to Lowell via the new city of Lawrence.

The Harrisburg Intelligencer learns that the Canal Commissioners are making every exertion to open the canals by the 1st of March, and that, if no freshets should occur to produce breaches, they are confident that the several lines will be in order for transportation from the 1st to the 10th of March, certainly not later than the last mentioned day.

It is with much gratification that we announce that by the promptness and enterprise of the citizens of New York and the principal river towns, the entire required capital for the Hudson River Railroad was promptly subscribed in season; and that the public may now anticipate with confidence the early completion of a thoroughfare by which a citizen of New York may take his seat at 7 A. M., visit Albany, spend two hours in business or calling on friends, and return to the city in season for tea, not to say dinner.

According to present appearances the Norwich and Worcester Railroads will be extended to New London without long delay. The New Londoners are wide awake to the enterprise, as well they may be. It would be the first great and good thing ever accomplished for that city, and many of the citizens,

even of Connecticut, would soon learn that New London is within the limits of the State. It is proposed to take up all of that road now extending from Norwich to Allyn's Point, and lay the whole of it on the western side of the river Thames, commencing from Norwich and running to New London.—One hour's time will be gained by the operation by passengers to and from Boston or New York. The cost of the improvement is estimated at \$300,000.

The stockholders of the Portland, Saco and Portsmouth Railroad Company, have voted to sell their railroad to the Eastern Railroad and the Boston and Maine Railroad Companies, for a perpetual annuity of six per cent. on the capital paid in.

We have frequently noticed "new inventions" and improvements in railroad cars and machinery, which have appeared as "new inventions" only, not having been applied to practical use. We learn from the Boston Post, that Messrs. Butterfield and Cutting have now exhibiting in that city, an improvement that promises to be of great utility. The editor says—The principle is a *self-detacher*, which is applied to each car; and in case of any obstruction on the road calculated to throw the engine off the track, or raise the wheels, each car is instantly detached from the other by the operation of a self-acting lever, thereby saving the passengers harmless. Connected with this improvement is another, denominated a *sparkler*, which can be fitted to an engine, and is intended to prevent sparks or cinders from passing out of the smoke pipe and annoying the passengers. We understand that the Eastern Railroad Company intend to make immediate application of these inventions to their engines and cars, and from a hasty examination of the models, we think they are admirably calculated to remedy the evils for which they are intended.

The Newburgh branch of the Erie Railroad is progressing in good style. We learn that the work on the whole line is in a state of forwardness, and with the exception of a mile or two at this end of the route, will be graded by the middle of next summer.

The whole stock of the Central Railroad, says an exchange, "has been subscribed for, and several hundred shares over. This road which is to connect Pittsburg with Philadelphia, is an enterprise of much importance to the public in general as well as to Philadelphia in particular. The citizens of Pittsburg have imbibed some degree of prejudice against this route, on account of the opposition manifested by the Philadelphians against the Pittsburg and Baltimore route: but as this circumstance has had the effect to secure both charter and subscriptions to the Central road, the Pittsburgians will be ready to share its benefits."

#### Boston vs. New York.

A late number of the New York Journal of Commerce contains some statistics which go to show pretty convincingly that the "City of Notions" is treading hard upon the heels of her great rival, "Gotham"—and that Boston is fast outstripping New York in the western trade, by means of the railroad to Albany. The singular success of this road is known to all. It has astonished and alarmed the good people of Gotham, who, relying on their great natural advantages, looked formerly with contempt on this enterprise—never dreaming, any more than the Venetians of old, that so large a part of their old established business could be wrested from them and retained. The history of this road is without a parallel. It presents the singular spectacle of a railway 202 miles long, with two summits—one of 1400 feet above tide, the other 918 feet, and

with grades of 83 feet per mile—competing with the steamboat navigation of the world renowned Hudson, a distance of 52 miles less than the railroad! The bearing of this fact on certain questions now agitated in our own community, will be evident to all. "The Western railroad," says Mr. Roebling, a distinguished engineer, in a paper lately read before the Pittsburg Chamber of Commerce, "presents a most forcible argument in support of this new doctrine, that the best water communications are destined to become subservient to railroads, for travel as well as freight. I draw your attention to this question: if the Hudson river, between New York and Albany, the best steamboat navigation in the world, 150 miles in extent, is not capable of commanding the trade and travel exclusively, in competition with a railroad of over 300 miles long, from Albany to Boston, with two high summits and objectionable gradients, what may be expected of the success of steamboat navigation on the upper Ohio, in competition with a railroad will located and with moderate gradients. Freight is carried by steamboats at the rate of from two to five cents per 100 lbs. per 100 miles. This is at the rate of from 40 cents to \$1 per ton per 100 miles. Coal is transported from Pottsville to Philadelphia by railway at less than \$1 per ton per 100 miles. But whether steamboats charge a few cents more or less, will little influence the transport of the great west, while the saving of transshipment and commission, and the certainty, rapidity and safety of conveyance, are of much greater moment to the merchant and the traveller."

Annexed are the statistics from the Journal of Commerce. Whoever examines them will not be surprised that the New Yorkers regard Boston as a powerful rival in the great fields of commercial and general enterprise. Well may they be jealous; for Yankee shrewdness and energy are "hard to beat," under any circumstances, and there is a prospect that at no distant day they will allow the great city of Gotham to share the sceptre but equally with the metropolis of New England. Not only has Boston by a bold stroke appropriated to herself a rich share of the western trade, to secure which New York expended \$30,000,000 on her canal, but she has wrested from her the most brilliant part of her commercial glory, in monopolizing the grand enterprise of ocean steam navigation. It is but fair to add, however, that New York is rousing at last to a sense of her situation, and has just subscribed \$3,000,000 to the Hudson River railroad, by which she hopes to retrieve her losses:

"Has Boston, since she, with her usual enterprise and sagacity, introduced her iron fingers into the vital source of our internal commerce, been gaining on us in general prosperity or not?"

"I begin with the year 1841, (that in which the railroad from Boston to Albany was opened,) and contrast it with the past year, 1846.

"I take personal property first.

Boston.		New York.	
1841—	\$36,043,600	1841—	\$64,843,979
1846—	58,730,000	1846—	61,740,470

Gain,	\$22,675,400	Loss,	3,373,502
or 63 per cent.		or 5 1-5 per ct.	

"Next as to that of real estate.

1841—	\$61,963,000	1841—	\$187,350,948
1846—	90,119,600	1846—	183,480,931

Gain,	\$28,156,600	Loss,	3,870,017
or 45 1/2 per cent.		or 3 per cent.	

He tells the proprietors of real estate in New York that,

"Their buildings and vacant lots were worth

\$187,000,000 in 1841; in the intervening five years they have certainly expended \$25,000,000 on them, (and more probably \$30,000,000) in replacing old buildings with more appropriate structures, and erecting new buildings on vacant lots; and yet, with all this absorption of current means, their estates as a whole are not worth as much by \$4,000,000 as they were in 1841."

#### Macadamized and Plank Roads.

We have been favored with the following well written communication, from the pen of a gentleman who has had much experience in road making, to which we would call the attention of our readers. Macadamized roads are deserving of more attention than they have received in this country; and we are therefore the more desirous to call attention to the subject. By referring to the early volumes of the Journal, it will be seen that this subject was not overlooked by us at that early day—though it has since been, to a great extent, by the public.

We are obliged to the writer for this, and shall look with interest for his promised article on plank roads.

For the American Railroad Journal.

In a late Railroad Journal I perceive some remarks upon "Plank roads," and I also observe that it is intended to form some such roads, in particular localities, in some parts of the United States, where they are but little known.

I have long been a subscriber to your Journal, and am glad of an opportunity of acknowledging my obligations to its columns, for a great deal of valuable information on the construction as well as the statistics of railroads, and upon many other useful subjects, and I do not know how I can make a better return, than by conveying to you, and to your readers, a practical description of Plank roads in Canada, and of Macadamized roads both in Canada and in England. I wish I could add of railroads also; but, alas! we have not any in Canada of which to give their history. The writer of this communication came out from England to Canada in 1832, with the especial object of introducing an improved system of making roads, having been so employed for many years in England, and bringing with him letters of introduction and recommendation from some of the principal members of the British Government to Sir J. Colborne.

At the period alluded to, April, 1832, there was not in Canada a mile of road made upon, I may say, any system; the consequence was, that even within the first mile of the Capital of Upper Canada, then called Little York, in wet weather the road was one continued mud hole, through which it was difficult for a team of horses, or a yoke of cattle, to draw an empty wagon; the largest load on a wagon, when the roads were in their best state, from the respective mills, within ten miles of the town, was six barrels of flour, and it was difficult to go and return the same day. In the fall of 1832, at the then Governor's suggestion to Parliament, a mile of Macadamized road was ordered to be made as an experiment—the inhabitants, never having seen such a road, could not believe in its asserted superiority and permanency; the mile was made, and from the peculiarly unfavorable nature of the soil, the absolute necessity of perfect drainage, the cost of the stone, which consisted wholly of granite boulders, the total inexperience of the population of the knowledge of stone breaking and spade labor, and the exorbitant demands of the few persons who had stone on their lands, this mile cost £2000. This metal bed, it should be remarked, was 30 feet wide, and the metal laid 11 inches thick; expensive as it was, it has proved itself to be the very best piece of road in Ca-



nada, and literally for six or seven years had no repairs made upon it.

The road was made on principles somewhat different, and as it is believed, superior to those since made by the Canadian Board of Works. The metal "bed" was formed very solidly, 11 inches deep within the abutments, and it was exactly of the shape of the road when finished, that is rising in the centre, (or barreled technically) six inches in a road 20 feet wide, and four inches when the width was narrowed to 16 feet. The stone was broken so as to pass through a two-inch ring, or in the absence of one, any stone that could not be put into the stone breaker's mouth was considered too large. Up to the present time in 1847, there are but about 18 miles of this road (the Young Street road,) completed.

The next piece of Macadamized road was made in 1837-8, from Kingston to Nappance, a distance of 24 miles, which including bridges all of solid masonry, and cutting down hills, mostly solid lime stone rock, cost on the average about £3000 currency per mile.

About the same time, six miles of Macadamized road were constructed from Brockville on the Perth road, and which cost about £1300 per mile. This road passed over a bed of solid lime stone rock, and there was very little cutting; the stone was taken from the ditches.

Twelve miles were also made from Hamilton towards Beauford, which from the difficulty of ascending the mountain, and other engineering difficulties, cost about £2500 per mile.

No other Macadamized road, strictly so called, has been made in Canada West; about 20 miles of gravelled road was made between Beauford and London, which cost, including grading, about £800 per mile; the stone on this road was only 12 feet wide, and principally constructed of gravel screened and laid down as it came from the gravel pit, except that the large stones were broken and laid on six inches thick with a flat metal bed.

These are all the Macadamized roads made in Canada West up to the present time.

**Practical Remarks upon Constructing Macadamized Roads.**—The great desideratum is draining, and by draining is meant not merely taking off the water into side ditches, but also in constructing tap or off-take drains, by which no water is permitted to stand in the side ditches; and not only so, but where springs break up in any part of the road between the ditches, they must be carried into the side drains, so that the metal bed is always kept perfectly dry. French drains must also be made use of as outlets from both sides of the metal bed through the abutments leading into the ditches: these drains are usually made diagonally, so as to get a better descent; they are about one foot wide, and rather deeper than the metal bed, and serve to carry off the water which falls on the road, and passes through the metal bed, before the materials are become solid. Common observers are not aware, that where a road is not properly drained, if you dig a hole in it the water will rise to its natural height, if not immediately, it will in a short time, and to place broken stone upon a wet clayey surface, would be like putting shot into a batter pudding, it would soon go to the bottom.

Except near cities and towns, 14 feet is sufficient for the metal bed, and the two abutments each 10 feet, and then the side ditches will occupy each six feet wide on the surface, with banks sloping one to one and two feet deep, will give a roadway 46 feet wide, leaving on each side for foot ways, etc., eight or nine feet to the bush.

Near large cities, it will be desirable for a mile or

two, to make the metal bed either 18 or 20 feet wide.

The depth of the metal bed should be at least nine inches, and the broken stone should be as near as possible all of one size; nothing is so erroneous as to put large stones at the bottom and small ones on the top; suppose the road to be made of cannon balls and small shot, if the large balls do not come to the top, the small shot would pass between them to the bottom, leaving the heads of the large ones to form a rough and dangerous road.

The size of the stones for ordinary roads should be as before described, but for roads little used, or for light weights, they will make a hard road much quicker by being broken smaller, say half the size.

A road comparatively little used proves a very useful road if the metal bed is only eight feet wide and six inches deep; a large amount in construction is saved, and it has been found that carriages in breaking out to allow others to pass, even if heavily loaded, do not make a deep rut on the natural soil; the truth is, that the abutment of the road becomes hard from not being frequently disturbed, and carriages seldom break out twice exactly in the same spot.

**Blinding.**—This means laying on to a newly made piece of road, earth, sand, gravel, etc.; a difference of opinion prevails upon the expediency of this practice. The only advantage of it, and it is no small one, is that it presents a much earlier and a much smoother surface to a newly made road, and consequently saves a vast amount of animal labor, till the road in its natural state becomes solid.

Its disadvantages are, that it prevents the stones uniting by their angles, "the essential principle of a Macadamized road;" it makes a muddy surface in wet weather, and a very dusty one in dry weather; and nothing is so destructive as water to a well made road, as it occupies the hollow places, and forms the nucleus of a future and a very destructive mud hole, and what is perhaps worse than anything else, as the materials used for blinding will always have some clayey matter in them, which is an absorbent of water, the frost gets into it, and by its expansive force, drives the stones apart from one another, and thus makes a loose quaggy road in the spring and fall, and a shifting sandy road in dry weather.

The advocates for blinding are not aware that a Macadamized road made on sound and scientific principles will begin to become concreted at the bottom, and gradually become hard towards the surface; this is effected by the small fragments of stone broken off by the action of the wheels or the iron shoes of the horses, which, passing through to the bottom layer of the metal bed, fill the interstices and makes a hard body, which process goes on till the whole becomes a solid compact mass. There can be no doubt, therefore, that roads made without blinding will be much more solid, will throw off the water, will not be so easily affected by frost, and be far more durable than a blinded road.

Nor has it been generally known that the durability of a well made Macadamized road, is not more dependant upon the material used, than it is upon the nature and structure of the metal bed. If the stones are evenly broken and evenly laid on, by spreading with shovels, as a malster spreads malt on a floor, and all heaping avoided, the stones by uniting by their own angles, and confined by good abutments, the road partakes of the nature of an arch; and it has been proved in practice, that when the metal bed is become well compacted together, a tunnelled drain may be safely made down the middle without endangering the falling in of the road; all these minute particulars are therefore obviously

important in the construction of a Macadamized road; and it will be seen by any practical man, that while an attention to them is highly advantageous, the additional expense is comparatively trifling.

A Macadamized road, with a metal bed 16 feet in width and 10 inches in depth, will in practice require about 330 toise of broken stone, of 260 feet to the toise, per mile.

The cost of stone necessarily varies in different parts of the Province; in the Western District, as well as in parts of others, there is literally no stone for many miles together.

Where granite boulders are numerous, they may be collected on the side of the road at \$8 per toise; where they have to be carried a considerable distance, the cost will be higher in proportion; a toise of granite boulders weigh from eight to ten tons, according to the shape and size of the stone, a solid cubic foot weighs 180 to 185 lbs.

Where limestone formations exist near the sides of a line of road, the quarrying will cost from five to seven shillings the toise, to which must be added five shillings for throwing upon the road. They will with the breaking at eighteen shillings, furnish a supply of stone at \$5 the toise, which is the lowest possible price at which stone can be procured here.

The price paid for breaking granite boulders is from 30s. to 36s. the toise; for breaking lime stone, from 15s. to 20s., according to its hardness. An expert hand will, however, earn at these prices large wages, from \$1 50 to \$2 per day; an inexperienced or lazy man will not earn half a dollar.

The best Macadamized roads are those which are made of three parts granite and one part lime stone or sand stone.

The cost of ditching, draining, grading, forming the abutments and making the metal bed, under ordinary circumstances, may be estimated at about £400 the mile. This is, however, independent of lowering hills, building bridges or large culverts, or cutting extensive lateral drains, the cost of which, when necessary must be added.

The cost of lowering hills will depend upon their elevation, nature of the soil, whether rock or otherwise; the cost of bridges on the width of the streams, and the nature of the foundation, proximity of materials, etc. Taking 20 miles together in Upper Canada, probably £200 per mile may be a fair estimate for lowering hills and building bridges; this is however necessarily vague and altogether dependant upon circumstances.

A great deal of money has been wasted in pursuing a straight line over hills; a better as well as a cheaper road can be generally made by skirting a hill. It is no farther round the side of an orange than it is over the top of it.

A very mistaken practice has prevailed in Canada in the method of repairing Macadamized roads.

It has frequently happened that before an experienced engineer has completed his work, or probably when he has made a mile or two only, his services are dispensed with, and his place occupied by some one whose services can be obtained at a cheaper rate, (and not unfrequently by one of his foremen,) who is altogether ignorant of the first principles of road making, and wholly destitute of experience, or of the necessary practical or scientific knowledge requisite for either making or repairing roads.

The consequence is, that from want of proper attention the road is allowed to become "rutty," and from the unequal settlement of the metal there are many hollow places, which, if not properly managed, or injudiciously repaired, produce a loss of reputation to the engineer, while the public sustain the

double inconvenience of having to travel on a bad road, and of encountering the heavy expense of heaping on a quantity of new material which raise the road too high in the middle, and at a cost twenty times greater than the charge of occasional inspection by a competent and experienced engineer.

The labor of one man will keep in repair three miles of well made and well drained Macadamized road for the first two years after its formation, and for miles for the two years after that—by constantly raking the loose stones into inequalities of the road, and by also raking into the middle from the sides those which have been forced up by the constant pressure of heavy weights in the centre, scraping off the mud, opening water courses, etc.

During the fifth year the road may require to be "lifted," that is (technically) picking up with a sharp well-stepped pickaxe about two inches in depth of the solid metal bed, and spreading it evenly over the entire surface. This will cost about 9d. per running yard. The lower parts of the bed having become a solid mass, equally hard throughout, if this operation be well performed, the road will be better than ever it has been, perfectly free from inequalities on the surface, and will bid defiance to any weather or to any loads which may be drawn upon it, without fresh material for at least two years longer; when, if the metal bed from its wear has become thin, a covering of two inches of new material may be laid on.

The following is a calculation of the cost of an ordinary mile of road, without taking into account lowering hills, building bridges, engineering, compensation for land, toll gates, etc.:

330 tonne of stone delivered on the side of the road, at £2.....	£660
Breaking 330 tonne at 30s. per tonne.....	495
Forming, ditching, draining, etc.....	400
	£1,555

The following is a calculation of the cost to the public of a Macadamized road for a period of eight years, upon the most moderate scale on which such a road can be constructed in any part of Upper Canada, west of Kingston:

	Original cost of a mile of road as before stated..	£1,555 00
End of 1st year.	Cost of repair.....	20 00
	One year's interest.....	90 00
		110 00
2d year.	Cost of repair.....	20 00
	One year's interest.....	99 08
		119 08
3d year.	Cost of repair.....	15 00
	One year's interest.....	107 09
		122 09
4th year.	Cost of repair.....	15 00
	Interest.....	113 09
		128 09
5th year.	Cost of repair, by lifting 1760 yards, at 9d.....	66 00
	Interest.....	121 10
		187 10
6th year.	Cost of repair.....	20 00
	Interest.....	132 11
		152 11
7th year.	Cost of repair.....	20 00
	Interest.....	141 11
		161 11
8th year.	Repair by a coating of new material two inches, requiring 66 tonne stone, at £3 10.....	231 00
	Interest.....	151 12
		382 12
	The entire cost of the road to the public at the end of eight years.....	£2,919 10

\* Fractional parts of interest are not calculated.

Under the mode of management before described, it is assumed that the road will be as good as new at the end of this period.

JAMES CULL, Civil Engineer.  
Kingston, C. W., February 23, 1847.

#### Miscellaneous.

**Fall River Railroad.**—A proposal has been started for the extension of the Fall River railroad through Central Dorchester to Boston. We understand that a strong interest is manifested in Randolph and along the line of the proposed road. We learn, however, that a sufficient amount has been subscribed to ensure the completion of the branch roads already chartered from the Old Colony road to the Quincy quarries and to Milton and Dorchester. The construction of these roads will operate with two fold advantage to the Old Colony road, by securing the travel from those sections and ensuring the Fall River road to the Old Colony as a perpetual branch. We notice that a meeting of citizens of Randolph is to be held next Monday for the furtherance of the project of the Independent route. Why this should be, we cannot well understand. Randolph and the Fall River road are now sufficiently accommodated over the track of the Old Colony road. The Fall River road was originally intended as a permanent and perpetual branch to the Old Colony road; for these ends it was chartered; the branch roads about to be constructed from the Old Colony to different points on the line of the proposed Independent route, will sufficiently accommodate the travel of those sections and render the scheme of the Independent route entirely impracticable.—*Quincy Patriot.*

**New Railroads.**—A project has lately been started at New London to build a piece of road to connect that place with the city of Norwich. The whole cost is estimated at \$300,000. It is believed that by this route a full hour's time will be saved in the journey from Norwich to New York.

The railroad from Worcester to Nashua is already under contract, and being an easy route can be built in twelve months, and then New London will be connected with the Nashua, Concord and the northern railroads, by a continuous line of about 130 miles in length, intersecting the Worcester and Western roads. At Worcester a mammoth depot is to be built, for the accommodation of five roads, viz: the Worcester, Western, Norwich, Nashua and Providence.

**A Great Bridge.**—The railroad bridge over the Susquehanna river at Harrisburg, just finished by the Cumberland Valley railroad company, is an immense structure. The entire length of the bridge is 3,992 feet. It is built upon an improved lattice plan, the invention of Mr. Kirkpride himself, there being two double and two single segments of lattice. There are 23 spans, averaging 173 feet, and 2 arched viaducts, one 53 feet, and the other 84 feet long. There are two carriage ways, above which, immediately under the roof, is the railway track.

**Iron Ore in North Adams.**—Extensive and inexhaustible deposits of iron ore have been discovered within a few months, in North

Adams, Mass., where a furnace for the manufacture of pig iron has recently been established. The sum of \$50,000 has been expended in the necessary buildings and apparatus, and the proprietors are now making 4 tons of iron a day, of a good quality.

**Use of Grapes.**—Dr. Underhill strongly advises the culture of grapes, both on account of the profit to be derived from the sale of them, and from their value as food to sick and convalescent persons. At a late meeting of the New York Farmer's Club, Dr. Underhill made some highly valuable observations on this subject. After 15 years' trial with various kinds of grapes, he prefers some of our natives, and recommends the Catawba and Isabella. He has three acres of the former and seventeen of the latter. He says our people eat too much animal food, which renders their blood too thick, and causes diseases of the heart, liver and lungs. He thinks it would be infinitely better to substitute grapes and other fruit, for a portion of animal food.

**Chinese Artesian Wells.**—The Chinese apparatus for boring wells is thus described. It consists of a heavy bar of cast iron six to ten feet long, and from four to six inches in diameter: the lower end furnished with a boring tool combined with a motion pipe, and which is suspended by a rope passing over a large pulley fixed over the bore holes. This weight is wound round a windlass, and the whole is so contrived that the weight may fall from any required height. The tension given to the rope produces a circular motion, sufficient to change the place of the cutting tool at each descent.

**Steam Frigate Sidon.**—The engines of the British mammoth steam frigate Sidon, above the water level, are entirely made of malleable iron, or of brass metal, in proportions of composition similar to gun metal, and equally hard as the best iron, to resist the action of the shot should they be struck during warfare. The expansion gear is worked by tappets below, and the shaft is perfectly clear of any trapping. Vacuum pumps are used instead of springs or balance weights. The Sidon has also a patent reeling paddle wheel, the floats of which are regulated by those on deck, to suit the changes in draft of water according to the weight on board the vessel at the time.

**Wood Screw Machine.**—A valuable improvement in the manufacture of wood screws is noticed in the Brooklyn Eagle. The editor says: "It does its work in the most rapid and effectual manner of any bit of machinery we ever saw. By the plan hitherto, each screw had to be taken singly and put through the various operations requisite to its perfection. But the machine in question does the work by wholesale! It works its own way, too; is susceptible of the application of steam power, and can be taken care of by one-tenth the usual attendance. Another advantage is its simplicity of construction; it is not complicated at all, which all mechanics know is a great beauty of engineering." This machine is entirely of American invention, and seems to us calculated to increase the re-



putation of our country for inventing many of the best, cheapest and most profitable applications of power to machinery, used in any manufactures in any land."

**Magnificent Project in England.**—A company, with a large capital, are engaged in the erection of twelve hundred houses for the use of the laboring classes, who are to be conveyed back and forth from home to their daily toil by the railway. It is also in contemplation to erect villages at convenient distances from all large cities and towns, to which the working classes can travel every morning and return home at night without costing more than is now expended for badly ventilated and unhealthily-located dwellings for the poor under the present system.

**Alarming Railroad Accident.**—An accident of a most alarming character occurred on Wednesday last, about 11 o'clock, A.M., to the downward train of cars on the Tonawanda railroad, about a mile from Bergen, N. Y., the particulars of which are as follows: The engineer, it appears, discovered that the axle of the tender was broken, and immediately endeavored to arrest the engine. The train consisted of a baggage car, one passenger car, nearly filled with passengers, and fourteen heavy freight cars, loaded with wheat in bulk. The immense weight and impetus of the freight cars, the train being at its greatest speed, rendered unavailing all efforts to stop the train; and the passenger car together with eight of the freight cars, was thrown off the track, and precipitated some fifteen feet down the embankment. The passenger train fell nearly with its bottom up, and the freight cars burst through the bottom, breaking the passenger seats and crushing everything in their way. No life was lost, nor was any one dangerously injured: a result which seems little short of miraculous. Several were slightly hurt, and none wholly escaped from bruises. The passengers, after the utmost confusion and alarm, succeeded in extricating themselves.

**Decomposition of Steam.**—Mr. G. Gurney states, from experiment, that steam under high pressure is partially decomposed, and that in a state of gaseous vapor, it is capable of heating the iron flues to such an extent that linen is charred, gunpowder fired and metal is fused by it. Mr. G. suggests the use of fusible metal in some part of the pipes as a preventive of fire, for, melting when the flues become too highly heated, it will allow the escape of the vapor, and, of course, assist in cooling the pipes.

**Coal vs. Calico.**—It is estimated that the amount of capital employed in manufacturing at Lowell is a trifle more than *ten and a half millions* of dollars. The board of trade of Philadelphia in noticing this fact, boast that the capital now invested in bringing the coal of Philadelphia to market, is *thirty four millions* of dollars. It is hardly fair to put the whole of the great state of Pennsylvania against a single town in little Massachusetts. But there is another aspect in the state of their trade, of which they may speak with pride. The whole sum expended by government since 1804 for roads, fortifications, harbors

and rivers, say the board, does not much exceed *seventeen millions*, which is but half the sum expended by Pennsylvania in constructing avenues to bring one of her chief staples to market.

**A Great Bridge.**—The new railroad bridge across the Susquehanna at Harrisburg, is an immense structure. It is about four thousand feet long, built upon the improved double lattice plan. There are twenty-three spans, averaging one hundred and seventy-three feet each; and two arched viaducts, one fifty-three feet, and the other eighty-four feet long. The entire cost of this immense structure is short of \$100,000.

**Waterford Manufacturers.**—In the small village of Waterford, Saratoga county, there is the largest fire engine manufactory in this country. Twenty-four fire engines were made here last year, twelve hose carriages, 10,000 feet of leading hose, and 500 feet of suction. Nothing but fire engines are manufactured by Mr. Button, and orders are supplied by him to every part of the U. States, with a satisfaction, we have been informed, which won for him a prize of \$500 in Massachusetts, and was, with a liberality deserving much encomium, immediately made a present of to the fire company that got his machine, and was victorious in the contest. Waterford is quite a smart manufacturing village. Mr. Gage's machine shop is famous for the manufacture of slide lathes and printing presses. Here also is the well known button manufactory, so much indebted to the genius of that celebrated mechanic, Mr. Barton, whose biography we trust we shall soon be able to present to the readers of the *Mechanics' Journal*. There is also the linen twine manufactory of Mr. Beardsley, producing a great amount of shoemaker's thread and warps for coarse carpets. There is also a foundry in this place, and a number of grist mills. Waterford is situated on the banks of the Hudson and Mohawk, and is well adapted for manufacturing except in times of high water, which from the nature of its location produces what is called back water on the wheels, and either stops their movement altogether, or much diminishes their speed. The only remedy for this is a steam engine to be used in such cases, and which has been successfully and economically used in a number of places, such as at the Lodi foundry, Syracuse, and at the Rochester railroad machine shop.—*Mechanics' Journal*.

**Peterboro' Railroad.**—A meeting of the Stockholders of the Peterboro' and Shirley Railroad Company was held at Townsend, on Tuesday last, for the purpose of passing upon the location of the road, previous to filing of the same with the county commissioners. A majority of the stock subscribed was represented, and the location as reported and explained by Mr. Parker, the Engineer, was unanimously approved and confirmed. Authority was given to the Board of Directors "to make such alterations in said lines as may be deemed necessary and for the interest of the company."

The work of grading this road is going on with much activity, and it is expected that it

will be completed before the coming in of August. At a meeting of the Directors, same day, further assessments on the stock were laid, payable on the 10th of April, 1st and 15th of May, and if these are promptly paid, as the previous ones have been, the entire road may be ready for the cars in October.—*Bunker Hill Aurora*.

**Ogdensburg Railroad.**—A meeting of the Directors of the Ogdensburg Railroad Company, we understand, is to be held in the city, on the 15th March, at which Mr. Hayward will submit his report of his recent surveys. This report, we learn, will be of the most favorable character, as to the results of the survey. A highly eligible route has been obtained with grades no where exceeding 26 feet to the mile easterly and 40 feet to the mile westerly—a good country through which to build a road—abundance of good material and very little rock cutting. The prospect of this road, in the important matters of construction and business, are of the best possible description. It can be built at a cost probably lower than that of any New England road, and of its legitimate and certain business, no reasonable estimate can now be made. The Directors, no doubt, will take some decided measures to have the construction of the road put under contract, as soon as it may be done. The people on the line of the road, who have subscribed liberally to its capital stock, are anxious to see the work commenced, and we hope their expectations will soon be realized. Northern New York, to say nothing of the immense country north and west, ought to be opened to the business and population of Boston.—*Bunker Hill Aurora*.

#### Kennebec Railroad.

We learn from the Portland Advertiser, that the engineers upon the Kennebec and Androscoggin railroad, have found a practicable spot to cross the Androscoggin just above the falls at Lewiston, which will save about one half of the expense of constructing the bridge over that river, upon the estimate first made by Mr. Hall when crossed at a different point.

We also learn that the working survey has been extended to Greene, and the route found more favorable than anticipated.

We congratulate the friends of the road upon this favorable commencement of the work, and as the crossing of the valley of the Androscoggin was the most difficult part of the route, this survey to Greene settles the question as to this road being constructed at a very cheap rate as compared with other roads. The subscriptions in the various towns are going on, and the amounts raised in some towns double nearly the sum anticipated.

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee, **G. A. NICOLLS,** Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York.

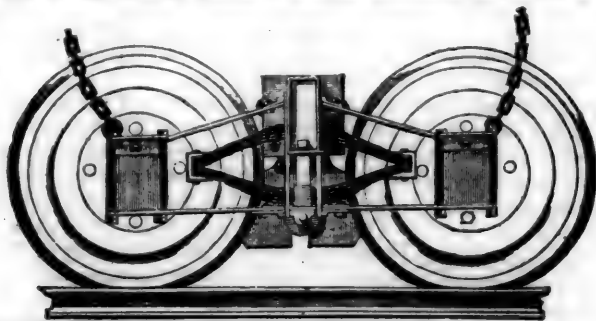
**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10c39

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.  
Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.		
11	4½	13	5	10	21	—	50	15-16	20	
13	3½	8	3	8½	16	—	37	11-16	13½	
14	3½	6	11	7½	12	8	17	9-16	10½	
15	2½	5	9	6½	9	4	13½	1-2	7½	
16	2½	4	3	6	8	8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. **W. H. CALKINS, and Others.**  
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Supt of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] **G. A. NICOLL,** Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,** Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, } [Signed,] **JOHN LEACH,** Jamaica November 12, 1845. } 1y19 Supt Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, and its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 3d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 31st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 130 Meeting street  
Charleston, S. C.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arrester have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public.

The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney; and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 9 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Patterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by J. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**SPRING STEEL FOR LOCOMOTIVES,**

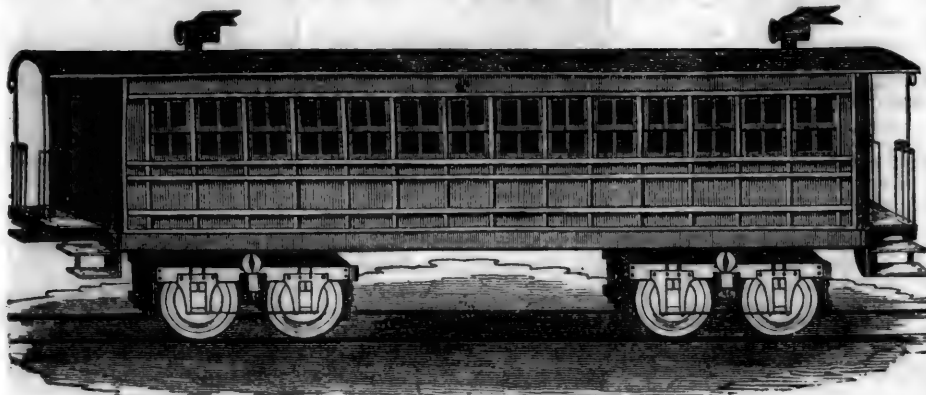
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

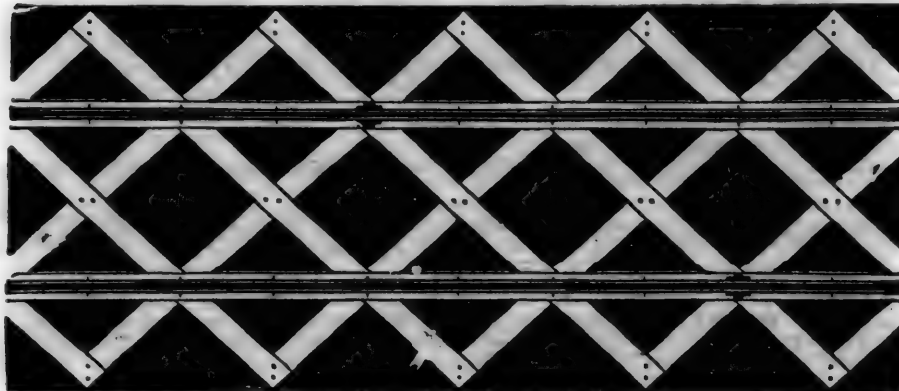


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10f

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As seen stripped of the top ballasting

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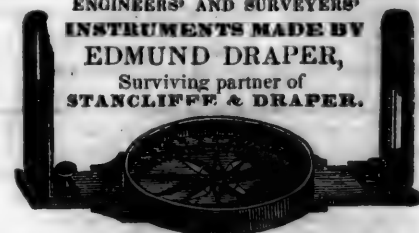
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No. 277 South Tenth St., Philadelphia. 33f

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**D. K. MINOR.**

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ly10 near Third, Philadelphia.

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**THOMAS PROSSER,**

Patentee.

ly25

28 Platt street, New York.

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Dec. 25, 1y\*

Maryland.

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TERMS.—Five Dollars a year, in advance.

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One page, single insertion.....	8 00
One column ".....	3 00
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Professional notices per annum.....	5 00

## BURTON AND PROVIDENCE RAILROAD.

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For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.  
Accommodation Trains, leave Boston at 7 a.m. and 3 p.m., and Providence at 8 a.m. and 3 p.m.  
Dedham trains, leave Boston at 9 a.m., 3 p.m., 5 p.m., and 10 p.m. Leave Dedham at 8 a.m. and 4 p.m. and 9 p.m.  
Stoughton trains, leave Boston at 11 a.m. and 4 p.m. Leaves Stoughton at 8 a.m. and 2 p.m.  
All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

## BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I. To and from New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 99		\$3.50 and \$3.00	
" " Reading, 48		2.25 and 1.90	
" " Pottsville, 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 8 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock p.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

## SPRING ARRANGEMENT, March 1, 1847.

## PORTLAND TRAINS.

Leave Boston at 7 a.m. and 3 p.m.  
Leave Portland at 7 a.m. and 3 p.m.

## GREAT FALLS TRAIN.

Leave Boston at 4 p.m.  
Leave Great Falls at 6 a.m.

## HAVERHILL TRAINS.

Leave Boston at 11 a.m. and 5-50 P. M.  
Leave Haverhill at 6 a.m. and 4 P. M.

## READING TRAINS.

Leave Boston at 9 A. M. and 8 P. M.  
Leave Reading at 6 A. M. and 1 p. M.

## MEDFORD BRANCH TRAINS.

Leave Boston at 7, 9 A. M., 2, 5-50 P. M.  
Leave Medford at 6, 8 A. M., 1, 5 p. M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry baggage above \$50 in value, and that personal unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1731 CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS.—

Leave New York at 7 A. M. and 4 P. M.  
" Middletown at 6 A. M. and 3 P. M.

Fare reduced to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT.—

Leave New York at 5 P. M.  
" Middletown at 12 M.

The names of the consignees and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 23th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ly

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 10 a.m., and 4 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 11 p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4 p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

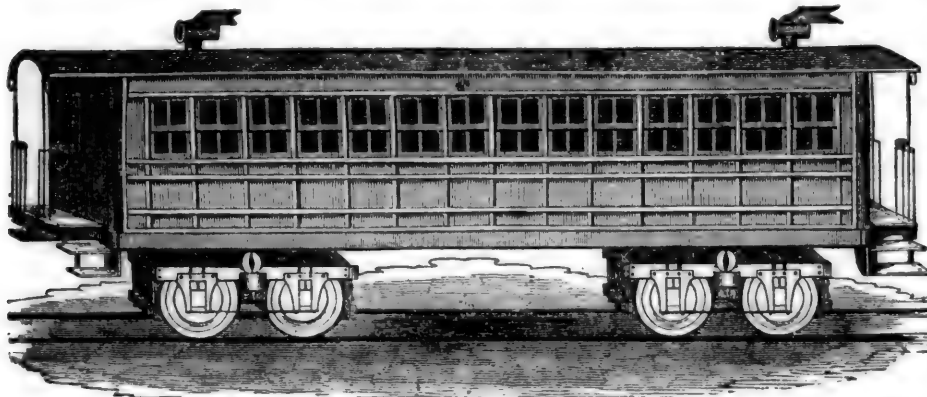
Freight Trains daily each way, except Sunday. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are less when paid for Tickets than when paid in the Cars.

31 ly J. W. STOWELL, Sup't.

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

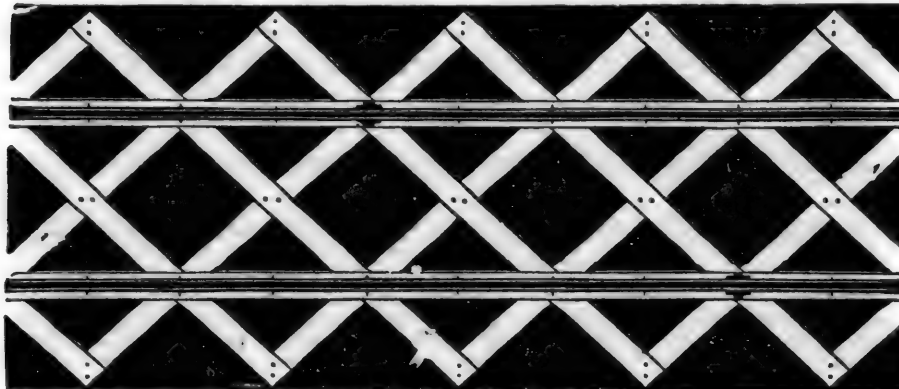


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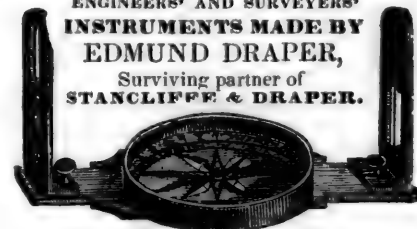
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Dedham trains, leave Boston at 9 a.m.; 3 p.m., 6½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4½ p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.

## BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and \$3.00	
" " Reading, 58		2.25 and 1.90	
" " Pottsville, 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

## SPRING ARRANGEMENT, March 1, 1847.

## PORTLAND TRAINS.

Leave Boston at 7½ A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

## GREAT FALLS TRAIN.

Leave Boston at 4½ P.M.  
Leave Great Falls at 6½ A.M.

## HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5:50 P.M.  
Leave Haverhill at 6½ A.M. and 4 P.M.

## READING TRAINS.

Leave Boston at 9 A.M. and 8 P.M.  
Leave Reading at 6½ A.M. and 1½ P.M.

## MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 9 A.M., 2½, 5:50 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 5½ P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—  
Leave New York at 7 A. M. and 4 P. M.  
" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—  
Leave New York at 5 P. M.  
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13th

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.



Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Sup't.

**TROY RAILROADS.**—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston

 to Buffalo and Saratoga Springs.  This road is new, and laid with the heaviest iron rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

**TROY AND SCHENECTADY RAILROAD.** This road is laid its entire length with the heaviest H rail—which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the train for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

**TROY AND SARATOGA RAILROAD.**  
THE ONLY DIRECT ROUTE.



No change of passenger, baggage or other cars on this route. Cars leave Troy for Baliston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846.

1y 32

**BALTIMORE AND OHIO RAILROAD.** MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

 timore every morning at 7 1/2 and  Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$13. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.



**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13y1

**MANUFACTURE OF PATENT WIRE.** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

**NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.**

Passengers destined for  Columbus and Cincinnati,  Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened (laid with heavy iron,) to Mansfield, distance..... 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

**TIME.**  
From Buffalo to Sandusky..... 24 hours.  
Leave Sandusky 5 a.m. to Columbus..... 14 "  
From Columbus to Cincinnati..... 15 "  
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

**FARE.**  
From Buffalo to Sandusky, Cabin.....\$6 00  
" " " " Steerage..... 3 00  
" Sandusky to Columbus..... 4 50  
" through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.



Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, *Sup't, etc.*  
M. & S. C. R. R. Co.

Sandusky City, Ohio.

**NEW YORK & HARLEM RAILROAD CO.**—Winter Arrangement.

 On and after Monday, November 23,  1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. (freight train,) 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. (freight train,) 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, (Pleasantville 4 miles from Sing Sing,) 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. (freight train,) and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, (freight train,) and 11 a.m.; 1 20, and 4 p.m.

Leave White Plains, at 8 12, 10 30, (freight train) and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, (freight train,) and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49 1y10

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 1/2 p.m. Arrives at..... 9 a.m. and 6 1/2 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 1/2 p.m. and 8 p.m. Leaves York for Columbia at..... 1 1/2 p.m. and 8 a.m. Leaves Columbia for York at..... 8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at..... 5 1/2 p.m. Returning, leaves Owings' Mills at..... 7 a.m.

D. C. H. BORDLEY, *Sup't.*

31 1y Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVANNAH TO MACON.** Distance 190 miles.


This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally..... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime).... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**THE BEST RAILROAD ROUTE TO THE**

Lake and Buffalo, from Cincinnati. Take Cars to Xenia, 65

 miles; take Stage to Mansfield, 68 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00  
" " Sandusky to Buffalo, Cabin..... 6 00  
" " " " Steerage..... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles (this road is run over in 2h. 50m.,) most railroad, which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, *Sup't, etc.*

M. & S. C. R. R. Co.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or Imported Rails. Also on hand and made to order, Bar Iron, Braxlers' and Wire Rods, etc., etc.

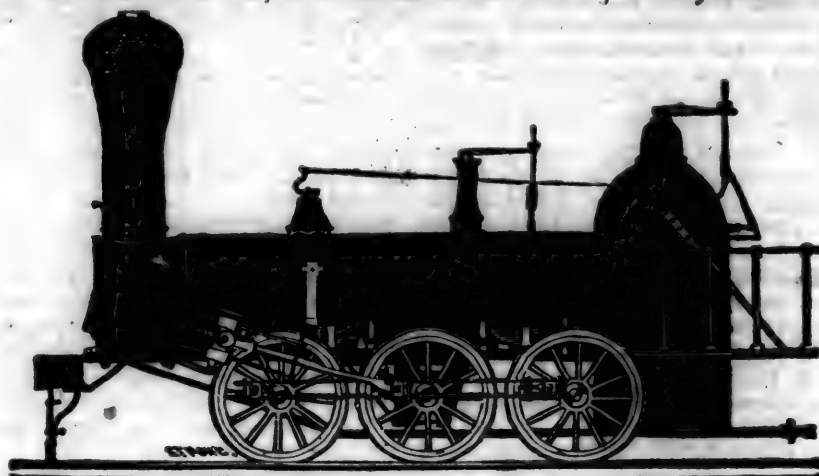
PETER COOPER 17 Burling Slip, New York.



a45 N. E. cor. 12th and Market sts., Philad., Pa

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.

Murdock, Leavitt & Co. }

J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.

Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.

Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark N. J.

Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly.

35.

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by

Mar. 20th

4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, truns, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x30 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 30 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 30 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**W**ELED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2000 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**T**O LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 6 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture and for sale by

MORRIS TASKER & MORRIS.

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

J. BALL & CO.



**New York and Erie Railroad.**  
*Report of the Commissioners.*

We have received a copy of the report, made by a majority of the commissioners, appointed by the New York Legislature, to decide upon the final location of this important work, between the Shawangunk mountain and Binghamton, which we shall give nearly entire, with the profile showing both routes. It is hardly necessary for us to call attention to it, as its importance will necessarily secure for it a careful perusal; we will however say, that every man interested in railroads will find his advantage in reading it more than once.

The report is of course made to the Legislature, and is as follows, viz:

The Commissioners appointed by "An Act to amend an Act entitled, 'An Act in relation to the construction of the New York and Erie Railroad,' passed May 11th, 1846, and for other purposes," respectfully present the following REPORT:

The fifth and sixth sections of the Act direct that the Commissioners shall proceed to adjudge and determine, whether in their opinion, a practicable interior line or route exists, upon which the company can construct their railroad, without great prejudice to the public interest of the State, and the interest of the citizens collectively considered, who will be affected by the construction and location of the road.

The seventh section of the Act directs that, in determining the question whether such routes exist, the Commissioners shall take several matters into consideration, among which is a comparison of grades, elevations and depressions, and curvatures, on the line or track of such railroad, in other counties east and west of Sullivan county.

It was urged on the part of the friends of the interior route that under the Act, the Commissioners had only to determine, as an abstract and independent fact, whether a practicable interior line or route existed upon which a road could be constructed without great prejudice to the public interest, and that in coming to such determination, the Commissioners were not authorized to compare it with any other line or route, or to survey any other route with a view to such comparison.

If such a narrow construction of the Act were to prevail, it is very apparent that the Commissioners would have nothing to do but to establish the interior routes, as it is quite evident such routes are practicable; that it is possible to construct a railroad thereon, and that such railroad, instituting no comparison with any other line, can be constructed without great prejudice to the public interest. But these facts were as clear to the Legislature, who enacted the law, as they are to the Commissioners, who act under it. They were perfectly obvious from the surveys, reports and estimates before the Legislature; and if the Legislature entertained the views presupposed by such construction, they would have simply directed the construction of the road, without any useless reference to Commissioners.

It seemed to the Commissioners further quite evident, that whether the interior lines were practicable, and afforded routes for the

construction of a railroad, without great prejudice to the public interest, was not a question of mere abstract practicability and freedom from injury, but was necessarily comparative. The Commissioners could not adjudicate as to the matters which they were required by the act to adjudicate, without comparing the interior routes with some other routes, and from the comparison make the determination. The Act, in the estimation of the Commissioners, clearly contemplated such comparison, as a preliminary to the adjudication; and it was to them as clear, that the comparison should be made between the interior routes, and the routes through Pennsylvania. The application of the company for leave to construct a portion of their road in Pennsylvania, which was followed by the law under which the Commissioners acted, and from the provisions of said law, clearly indicated the propriety of making such a comparison of routes.

It is believed that the Commissioners were unanimous in the opinion, that as an abstract question, practicable interior lines did exist upon which a railroad could be constructed; and also, in the opinion that it was proper in making an adjudication to compare the interior lines or routes with the Pennsylvania routes, both of which had been caused by the Commissioners to be surveyed and estimates of cost made. It was found as the result of such surveys and estimates, that the grades of the interior routes were as favorable as they were supposed to be when the Act was passed, and that the expense of construction of the Pennsylvania route would be about a half a million of dollars more than upon the interior routes.

It is believed the Commissioners were unanimously of the opinion that the Pennsylvania routes, though constructed at a greater cost, and paying \$10,000 annually as a tax to the State of Pennsylvania, considered solely in view of the natural advantages of the two routes, would yet, from the much more favorable character of the grades, be the preferable route for the Company to adopt, and for the public to employ.

The evident purpose of appointing the Commissioners was, that they should obtain the facts accurately, compare the merits of the two routes candidly, and to determine upon the interior routes, unless the merits of the Pennsylvania routes greatly preponderated. If the surveys of the interior routes, should prove to be more favorable than the surveys of the same routes previously before the Legislature, it does not therefore follow necessarily, that the interior routes should now be adopted. If that had been intended as a necessary consequence of such favorable results of the surveys, the Legislature would have so said. If the grades in the counties east and west of Sullivan, are steeper than the grades on the interior routes through Sullivan, it does not therefore necessarily follow, that such interior route should be adopted. The Legislature have not so directed. The more favorable grades shown by the recent surveys, are facts to be taken into consideration by the Commissioners, and to have

their due influence; but they are not to outweigh all the other facts of the case.

The important question is, can the road be constructed on the interior routes "without great prejudice to the public interest," and what, within the meaning of this act, is to be deemed such great prejudice, as when compared with the advantages of a more favorable location, to forbid the construction on the interior routes. The interests of the citizens who are to be affected by the location of the railroad, collectively considered, are to be taken into the account in making up the estimate of prejudice to such interests.

The interests of all the citizens living upon the line of the road, or within the vicinity of the line of the road, or whose property will be transported to market by means of the road, or who will be interested in the traffic of the road, will be affected by its location and construction.

Having submitted the preceding remarks, on the duties devolved by the Act, the Commissioners proceed to give a statement of their investigations and conclusions under it.

At a meeting of the Commissioners held on the 26th of May, two Engineers were appointed; one to make the surveys and estimates required on the routes between the summit of the Shawangunk ridge and Deposit; and the other for the routes between Deposit and a point one mile westerly of the village of Binghamton. Henry Tracy, Esq., was appointed to the first-mentioned routes, and James O. Morse, Esq., to the last-mentioned routes. Those engineers were both on the surveys under the previous commission; and they were directed to enlarge their parties for more full examination.

Under the views taken by the Commissioners, the Engineers were instructed to survey the routes that pass through portions of the State of Pennsylvania, on the Susquehanna and Delaware river. On the 23d of June the Commissioners held a meeting in New York, with the view of making a tour over the districts interested in the questions submitted to them, of obtaining a general knowledge of the country, of conferring with such of the inhabitants as desired to make suggestions, and also of advising with the Engineers as to the progress they had made, and the probable time when they would be able to submit the results of their surveys.

The Commissioners proceeded to Binghamton, and four of their number, Messrs. Childs, Wilson, Pierson and Dewey, returned by way of Nineveh to Deposit; thence, via the Delaware river to Port Jervis, and arrived at New York on the 3d of July; a meeting was there held by the Commissioners on that day; at which it was decided that a meeting be held at the same place on the 3d of August; whence they would proceed to Monticello, to Harpersville and Binghamton to hold sessions at these places respectively, on the 5th, 10th and 12th of August, in order to hear such parties as might have any matter to submit to their consideration, in relation to their duties under the Act. It was further decided that public notice of the proposed meetings, should be made in one of

the newspapers in the city of New York, one in each of the counties of Sullivan and Broome, and in the Albany Argus.

On the 3d of August, the Commissioners met in New York, and thence proceeded to the places indicated, and held meetings agreeably to the above-mentioned arrangement.

At each place the general result of the surveys made by the engineers was made public, and all persons who were disposed, had full opportunity to present their views, on the subjects submitted to the Commissioners. The several occasions were improved by friends of the different routes, who entered, in their discussions, fully into the reasonings which they respectively regarded as favorable to the routes they advocated.

**General Description of the Routes Surveyed under the Direction of the Commissioners.**—Commencing at a point about one mile westerly of the village of Binghamton, and extending easterly to Deposit; there are two routes; which for distinction are called, one the Nineveh or interior route; and the other the Susquehanna or river route.

The Nineveh route, passes up the Chenango Valley to Port Crane, near the mouth of Page Brook, where the heavy grade commences, thence follows Page Brook valley and reaches the summit between the Chenango and Susquehanna rivers, called the new Ohio summit. To reach this summit a grade of 65 feet to the mile is encountered. The line then descends and reaches the Valley of the Susquehanna at Nineveh. The line then ascends by a maximum grade of 65 feet per mile to the Bettsburgh summit, which is the summit between the Susquehanna and Nineveh and the Delaware at Deposit. The line then descends to Deposit. The total length is 43.58 miles.

The Susquehanna route passes through the village of Binghamton, and continues up the valley of the Susquehanna to near Lanesboro' in the State of Pennsylvania. To this point the maximum grade is 20 feet to the mile. It then leaves the valley of the Susquehanna and reaches the Gulf summit, or the summit between the Susquehanna at Lanesboro', and the Delaware at Deposit. The maximum grade to reach this summit, is 68 feet per mile. The line then descends to Deposit: the total length is 39.29 miles.

The following tabular statement show the essential character of the two routes:

	Susquehanna, or River Route.	Nineveh, or Interior Route.
Maximum grade going east.....	68 ft. per mile.	65 ft. per mile
Do. do. do. west.....	67 " "	74 " "
No. of summits.....	1 summit.	2 summits.
Length of line on which maximum grade rules.....	15.66 miles.	35.6 miles.
Total ascent going east.....	540 feet.	1087 feet.
Do. do. do. west.....	395 "	936 "
Total rise and fall.....	935 "	2023 "
Minimum radius of curves.....	1000 "	1056 "
Total curvature, in degrees.....	2371 degrees.	3253 degrees.
Length of lines.....	39.29 miles.	43.58 miles.
Total estimated cost of grading, with superstructure on extra length.....	\$746,900.	\$628,600.

The maximum grades for loads moving eastward are three feet per mile greater on the Susquehanna route, than on the Nineveh route. The length of line on which maximum grade rules is nearly 20 miles less on the Susquehanna than on the Nineveh route. The total ascent for both east and west is 1088 feet greatest on the Nineveh route. The radius of minimum curvature, is the most favorable by 56 feet in 1000, for the Nineveh route. The total curvature is 882 degrees, or 245 circles most favorable for the Susquehanna route. From Deposit, the line proceeds down the valley of the Delaware river about 40 miles, to the mouth of Callicoon creek. To this point it is common to the two routes between the mouth of the Callicoon creek and the summit of the Shawangunk ridge in Orange county.

The two routes between the points last mentioned, for the purpose of distinction, we call, one the Sullivan county, or interior route, and the other the Delaware river or southern route.

The Sullivan County or interior route follows up the valley of the Callicoon creek, thence crossing to the Mongaup and Neversink rivers, and over the dividing ridge, between the latter and the head waters of the Sandberg creek, which it follows several miles, and thence by the Mamakating valley to the village of Wurtsboro'. The distance from the mouth of the Callicoon to Wurtsboro' is 52.58 miles. There are several different rates of ascending grade going eastward, the maximum of which 45 feet per mile. From Wurtsboro', the line begins to ascend the northwestern slope of the Shawangunk mountain, and reaches the point of junction at the summit gap in a distance of 8.56 miles, with a maximum grade of 45 feet per mile.

The Delaware river route continues down the valley of the Delaware river, from the point of divergence at the mouth of Callicoon creek. It occupies the New York side of the Delaware river, for 20.23 miles, and then crosses it to the Pennsylvania side, and follows that side about 27 miles; where it recrosses, and thence continues on the New York side to Port Jervis. The distance from the mouth of the Callicoon creek to this place is 48.97 miles; the line then leaves the valley of the Delaware, crosses the table land and the valley of the Neversink and ascends the northwestern slope of the Shawangunk mountain, reaching the summit gap in a distance of 9.56 miles. The grade going east from the Callicoon to Port Jervis, is either level or descending; and from Port Jervis to the summit of the Shawangunk, the maximum grade is 50 feet per mile.

The maximum grade of 45 feet per mile, rules for 61.14 miles on the interior route; and at 50 feet per mile for 9.56 miles on the river route. The total rise and fall is 1466 feet more on the interior than on the river route: the minimum radius of curvature 245 feet less favorable; and the total curvature is 2021 degrees, (equal to 839 circles,) less favorable on the interior than on the river route.

The following tabular statement shows the essential character of the two routes:

	Delaware River Route.	Sullivan County or Interior Route.
Maximum grade ascending east.....	50 ft. per mile.	45 ft. per mile.
Do. do. do. west.....	15 " "	47 " "
No. of summits.....	1	5
Total ascent east.....	1454 feet.	1187 feet.
" " west.....	316 "	1049 "
" ascent and descent.....	770 "	2236 "
Total length of line on which maxim. grade rules.....	9.56 miles.	61.14 miles.
Minimum radius of curves.....	1200 feet.	955 feet.
Total curvature.....	4588 degrees.	7609 degrees.
Length of lines.....	58.53 miles.	61.14 miles.
Estimated cost of grading.....	\$1,496,430	\$1,094,950.
Length from the mouth of the Callicoon.....	48.97 miles to Port Jervis.	52.58 miles to Wurtsboro'.

In considering the question of motive power on the routes in question, it becomes necessary to understand the influence of the adjacent parts of the road.

Commencing at the point near Binghamton, the road westward of that place, for more than 100 miles, has no grade descending eastward, of more than 20 feet per mile. Consequently the trains will come to this point from the west, with loads adapted to a ruling grade of 20 feet per mile. With this load they would continue on the Nineveh route about 8 miles, to near Port Crane, and on the Susquehanna route, 23.6 miles, to near Lanesboro', in Pennsylvania.

The extra power will therefore be, the amount required above that necessary for a grade of 20 feet per mile. The two routes unite again at Deposit on the Delaware. The line then runs down the valley of the Delaware, as before observed, 40 miles, to the mouth of Callicoon creek, and is level, or slightly descending eastward.

Between the Shawangunk summit and the Hudson river, at Piermont, grades of 60 feet occur.

If the Nineveh and Sullivan county lines were adopted, it would be a question of some practical importance to decide whether it would not be best to make up the trains moving east, (the direction of greatest load,) to go through to the Hudson without extra power. This course would render the level grade, of 40 miles on the Delaware, of little importance: but the inconvenience of changing the arrangement of trains for this distance would probably counterbalance the advantage of doing so. If the system of extra power at the heavy grades be adopted, for these routes, then, extra power must be provided to take a train due to a 20 feet grade, at Port Crane, (near the mouth of Page Brook,) and carry it over grades of 65 feet per mile, for a distance of 35.6 miles to Deposit. At this place a train due to a road nearly level, will proceed to the Callicoon: where extra power

\* This applies only to the line from Port Jervis, 9.56 miles to the Shawangunk summit, and the Engineer, Mr. Tracy, states this may be reduced to 45 feet per mile.

† The Engineer, Mr. Tracy, says this may be reduced to 48 feet per mile.



must be provided to carry it (over grades of 45 feet) to the Shawangunk summit—the entire length of this route. The same, or nearly the same power would be required to proceed to Goshen, and increased so as to adapt it to a 60 feet grade, before the train leaves Orange county. Frequent changes of trains, or motive power, will be attended with inconvenience and extra expense, and in practice the trains and power will be regulated to avoid changes as much as possible, especially if the road has only a single track.

It will be a near approximation, and simplify the comparison, to consider the routes for computation of motive power, to terminate for the Sullivan county, at Wurtsboro'; and for the Delaware river, at Port Jarvis. Considering the ascent from both these places to the Shawangunk summit as nearly the same, one 45, and the other 50 feet per mile, (and as suggested by the Engineer, the latter could be reduced to 45 feet,) the trains may be made up at these places respectively, to proceed over the ruling grades to the Hudson river, which are higher than either of the above. The train is then made up at Deposit for a level road and for the interior line, extra power is provided to carry it over the heavy grades between the mouth of the Callicoon and Wurtsboro', or for a distance of 49 miles; leaving the extra length of the line to Wurtsboro', over that to Port Jarvis, for a separate estimate.

This arrangement, for a basis of comparative computation, will be as favorable for the interior lines as can be adopted; and it is proper to remark that, in any practical arrangement of business, the Commissioners are of the opinion it would be found most simple, efficient, and not less economical, to make up the train at Port Crane, in Broome county, to proceed to Deposit, and there adapt it to a ruling grade of 45 feet per mile, to be thence carried to the Shawangunk summit, and probably to Goshen. This mode of computation, however, would present a less favorable result, as no benefit would appear for the 40 miles of level grade on the Delaware, above the Callicoon creek.

It is important to this investigation to know the power and the cost of working locomotive engines.

The Commissioners have devoted their attention to this subject; and though it is one on which there is some conflict of opinion, the results arrived at in the following statement, are believed to be sustained by the most extensive experience, where detailed accounts have been kept.

*Cost of motive power on railroads per train per mile.*

1st. Enginemen, firemen and stationmen:

Baltimore and Ohio road,	5	cents.
Utica and Schenectady,	8	"
Reading,	4.55	
Boston and Worcester,	5.50	
Fitchburg,	7.00	
	30.05+5=	6.01

New York and Erie 7.485

2d. Fuel:

Reading, wood,	\$3 50,	23 70
Bost. & W., do.	4 90,	22 20

Fitchburg, do.	4 25,	14 17
*Balt. & O., coal,	2 00,	8 00
		68 07+4=172
New York and Erie,	18 09	
3d. Repairs of engines and tenders:		
Reading railroad,	4 90	
Boston and Worcester,	9 05	
Utica and Schenectady,	7 93	
Fitchburg,	5 20	
Western, (Mass.)	6 50	
*Baltimore and Ohio,	9 00	
		42 58+6=700

New York and Erie,	8 75		
4th. Oil and cotton waste:			
Reading railroad,	1 74		
Boston and Worcester,	1 24		
Fitchburg,	1 30		
Baltimore and Ohio,	1 46		
		5 74+4=	1 43

New York and Erie,	2 94		
5th. Interest on cost of engines:			
Baltimore and Ohio		3 01	
6th. Conductors and brakemen:			
Reading road,	4 11		
Fitchburg,	6 20		

	10 31+2=	5 15	
Take 63 per ct. for brakemen, which is the ratio on the Reading road, as conductors should not be included, and the expense for brakemen is . . . . .	5 15×63=	3 14	
Do. Baltimore and Ohio railroad, as per estimate for coal trade,		2 40	
		5 54+2=	2 70

New York and Erie,	6 52		
7th. Repairs of road, chargeable to locomotive and tender:			
I. Ordinary repairs: of these one-fifth is regarded as chargeable to motive power.			
Reading railroad,	13 66		
Boston and Worcester,	18 00		
Boston and Lowell,	13 50		
Western, Mass.,	13 75		
Baltimore and Ohio,	18 30		
		77 21+5=	15 44

and 15 44+5 = 2 09

II. Deterioration of iron, not yet settled by experience. Half of this wear is believed to be chargeable to locomotives and tenders, on account of their greater weight. Suppose rail cost \$7,000 per mile, and will bear transport of 20,000,000 tons on a level road, average say 250 tons freight per train, equal to 800,000 trains. The cost per train will be \$8 75; and half of this is 4 37—7 46

The weight of engines in the cases above detailed is not known, but is supposed to average less than 15 tons on their driving wheels; to provide cost for an engine of 20 tons on driving wheels, would require an additional expense; but the fuel on the line of road under consideration, would be less expensive by about seven cents, than the average for the same size of engine. In view of both considerations, it is believed, a reduction should be made from the preceding result of, say, 4 79

And the estimate for a 20 ton engine, \$40 00

Forty cents per mile run, for motive power with an engine of 20 tons on the driving wheels, appears to be about the cost as indicated by the experience of the roads above quoted from.

It is difficult to obtain the items of expense as very few railroad reports present the items separately; and where they are given, they frequently include expenses for both freight and passengers. The weight of trains has an influence on the cost per mile, and in providing for power, reference should be had to this circumstance. The range for a cord of wood is from 15 miles to 40 miles run, according to the weight of train and size of engine.

From the data above presented, with due consideration of the circumstances, we have come to the conclusion, that 40 cents per mile run with a 20 ton engine, is about the actual cost of motive power, including interest and renewal of engines and tenders, and their proportion (according to the influence of their action on the road) for repairs and maintenance of way.

*Calculation of Motive Power Required on Railroads.*—Some difference of opinion exists as to the proper data for this calculation. It is generally considered, that an engine in good order will work up to the adhesion of its driving wheels. The main question therefore is, as to the ratio of this adhesion. In the most favorable state of the rails, this ratio may be taken at one-sixth the weight; but in many instances, slightly unfavorable circumstances in the rails and the condition of the engine, will occur in the ordinary business of the road; and for general purposes a ratio of one-eighth of the insistent weight is regarded as most favorable data for calculating motive power.

The friction of the cars is another element, and will depend on their condition. For general use 8 1 2 pounds per gross ton of car and load, is considered a proper basis.

The ratio of the weight of freight to the gross weight of car and freight, must be considered. Two-thirds is a common rule for a trade that admits of regularity, as coal, etc. For a general business, it is believed the freight will be about six-tenths of the gross load of cars and freight.

An engine of 20 tons gross weight, all resting on the driving wheels, is assumed as the basis of the estimate—tender 10 tons.—The elements will therefore be:

Engine=20 tons=44,800 pounds on all the drivers.

Adhesion=one-eighth the insistent weight.

Friction=8 1 2 pounds per ton; this is, essentially, equal to the resistance of gravitation, on a rise of 20 feet to the mile. Of course for every 20 feet rise per mile, there must be added the power required to move the train on a level.

Ratio of freight to gross load, as 6 is to 10.

\* Estimate for coal trade in 1844.

44,800+8=5600 lbs=tractile power of engine, 5600+8 $\frac{1}{2}$ =658 tons, gross load, exclusive of engine.

The freight the engine will carry on different plains will be as follows:

	Gross tons.
On a level, 658—10 (the tender) $\times 6=380$	
Ascent per mile.	
20 feet, [(658—20)+2—10] $\times 6=185.4$	
30 feet, [(658—30)+2 $\frac{1}{2}$ —10] $\times 6=144.7$	
45 feet, [(658—45)+3 $\frac{1}{2}$ —10] $\times 6=107.16$	
48 feet, [(658—48)+3.4—10] $\times 6=101.64$	
50 feet, [(658—50)+3.5—10] $\times 6=98.22$	
60 feet, [(658—60)+4—10] $\times 6=83.7$	
65 feet, [(658—65)+4.25—10] $\times 6=77.7$	
68 feet, [(658—68)+4.4—10] $\times 6=74.42$	
74 feet, [(658—74)+4.7—10] $\times 6=68.55$	

The following table shows the ratio of freight carried by the same engine on different gradients; and also the multiplier, or number of engines, required on different inclinations to carry the same load—the unit being a level.

Level,	Grade of Road.	Ratio.	Multiplier.
Ascending 20 feet per mile,		1.000	
" 30 "	" "	.476	2.098
" 45 "	" "	.372	2.689
" 50 "	" "	.286	3.630
" 60 "	" "	.252	3.960
" 65 "	" "	.215	4.647
" 68 "	" "	.1999	5.006
" 74 "	" "	.1913	5.227

It is necessary to consider the ratio of freight moving in different or opposite directions. No certainty can be arrived at as to this ratio. It will no doubt vary at different times. Probably an average of three tons will move east, to the one west, and there can be no doubt, that the freight moving east will control the question of power, except on that portion which is in the valley of the Delaware river, where the return load of one-third the freight with the whole number of cars, will require greater power than the full load moving east.

The grade going eastward on the Delaware river has a maximum descent of 15 feet per mile, and assuming the ratio of freight to be 3 to 1, the result as to the greatest load that can be carried on it, will be as follows.

The engine assumed has been shown to be capable of carrying on a level a gross load of 648 tons, exclusive of engine and tender; or, 399 tons of freight. The gross load the engine will carry up an ascent of 15 feet per mile, exclusive of engine and tender, is 357 tons. If the freight be 358 tons, the gross load of cars and freight will be 596 tons. The cars for this load will be 238 tons. To return with one-third the freight and all the cars, the load will be 358+3+238=357 tons. It has been shown that 327 tons is the capacity of the engine on this ascent; consequently the load moving east can only be 358 tons of freight. The load moving east is therefore restricted by the load moving west.

The gross load due on an ascending grade of 20 feet is 300 tons, the freight 185.4 tons. The weight of cars required for this load is 124 tons; one-third the freight is 62 tons, together 186 tons. To return up a 74 feet grade will require 63 per cent. additional

power. It therefore appears, that the train engine with a load due to a grade of 20 feet per mile, (this would be the train from Hornellsville to Port Crane) moving east, would require extra power to return on the interior route from Deposit to Port Crane, equal to 65 per cent.

The investigation as applied to the line between Deposit and Wurtsboro, shows the following result: Down the Delaware, it has been shown, the load is 358 tons of freight. That portion of the interior line embraced in this section has a return grade of, say, 48 ft. per mile. [In the table it is given at 57 feet, but as there noted, the engineer states it may be reduced to 48 feet.] To return with cars and one-third freight, over the interior portion of the section, gives a gross load of cars and freight of 358+3+238=357 tons. The engine will carry 169.4 tons up this ascent, consequently 2-10 engines, or 1-10 extra engines will be required to carry the return load.

From Wurtsboro to the Shawangunk summit, the line has a ruling grade of 45 feet to the mile. From Port Jervis to the same point, the ruling grade is given in the table at 50 feet, but the engineer states this may be reduced to 45 feet, in which case they may be regarded as the same. It will not be very material whether the latter is 45 or 50 feet, as the trains would in practice, most probably be made up at either point so as to encounter the heavier grades that occur towards the eastern termination of the road. This being about 70 miles, it is not probable there would be a second change of train for this distance. There will therefore be no material difference whether the computation for the purpose of comparison be made to the Shawangunk summit, or stop on one line at Wurtsboro, and on the other at Port Jervis.

For the computation of extra power, it is proposed to take the Hornellsville train, which will be loaded for a 20 feet grade, and by extra power carry it over the heavy grades to Deposit. At this place make up a train that will be suitable for the Delaware river section, and provide extra power sufficient to carry it over the heavy grades between the mouth of Callicoon creek and Wurtsboro; leaving the trains to be there made up either at Wurtsboro or Port Jervis for the heavy grades between those places and Piermont. This method will require but two changes of trains between Binghamton and Piermont, and in view of the whole subject is regarded as presenting a fair basis for comparing the two lines. It gives the interior route the full benefit of the favorable grade on the Delaware, between deposit and the mouth of the Callicoon, which may not be, and probably will not be wholly available in practice; and the river route has some additional elevation between Port Jervis and the Shawangunk summit, which may be regarded as a partial offset.

It has been shown that extra power will be required mainly as aid to the train moving eastward; and that a portion of this power will be required for the return train. A part of the extra power required to move the train eastward might be dispensed with, when it

reached the last summit of the ruling grade. There will, however, be practical difficulties in this. It will cause too much change in arranging the power, and tend to confusion in conducting the business of the road; and it will deprive the heavy trains of the power that is sometimes quite necessary, and generally a convenience, in regulating their descent on the heavy grades. There are times when the state of the rails is such that it is impossible to control the trains on a heavy descending grade, by means of the friction brake alone, where the power of the engine is indispensable; and even that is not always sufficient. In view of all the circumstances, there can be no doubt the most judicious business arrangement would be to run the extra power over the whole section affected by the ruling grade, both ascending and descending in the direction of the greatest trade. As the extra power must run in both directions over the section requiring its aid, it will always be competent to carry the return load; and as the load eastward will determine the amount of extra power necessary to be provided, the computation will be simplified by considering it charged wholly to the freight moving in this direction. The engines must return; and though partially loaded with the train moving westward, the expense or comparison will not be affected, whether it be charged in this manner, or divided between the freight in both directions. The total cost of extra power will be therefore charged on freight moving eastward.

It has been shown that the cost of running an engine weighing 20 tons, and capable of carrying a train of 388 tons freight on a level, will be 40 cents per mile run. It is, however, well known, that extra power kept in readiness for running at intervals, and for short distances, cannot be maintained at the same expense per mile run, as a regular train engine. The extra power must be adapted to the load, and this may require more than one and less than two engines, consequently two must be employed. Two or three engines coupled to the same train, will not perform as much in proportion to their power, as if worked separately; and if the train is separated and made up into several smaller ones, delay and expense is incurred. The power must be provided for a full load; but a general trade will be more or less irregular, and as the trains working on a long road must move at regular times, they will not always be full loaded, and the average will fall considerably below the capacity of the engines. This remark applies to the question of power generally, and is not peculiar to the provision for extra power. We are of the opinion that this extra power, for the reasons above given, will cost not less than 50 per cent. per ton of freight per mile, more than that of engines in regular work, and carrying loads equal to their full capacity. The ratio of increase in cost from the considerations above stated, cannot be arrived at with certainty, and though we think it will exceed the regular computation more than 20 per cent., this ratio will be assumed in the following estimates.

(To be Continued.)



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### Atlantic and St. Lawrence Road.

A friend, writing us from the city of Portland, says—"You can have no idea of the real feeling which exists in this region, in reference to the subject of railroads in the State of Maine. The road hence to Waterville will be built—and the prospect now is, that it will be pushed forward at once, most vigorously. The Atlantic and St. Lawrence railroad is progressing finely. As you are of course aware, some forty miles of this road has been put under contract, at the Montreal end, and we are getting out of Portland with our road as fast as may be. The terminus in Portland will be at the foot of King (India) street—the old 'Steamboat Landing'—and the work of getting through, and round 'Observatory Hill,' is being got along with as rapidly as is practicable. It is no trifling job to get the work forward out of the city limits—but once fairly into 'open ground,' and we shall get along with rapid strides. A few years hence, (though it may scarcely be believed at present,) and Portland will rank but second in the list of Eastern seaports, or I mistake!"

### Oswego and Syracuse Railroad Charter.

Efforts are being made, latterly, in New York, to secure the charter of the Oswego and Syracuse railroad, by which a winter communication will be opened between Lake Ontario and the city of New York. The Courier and Enquirer, alluding to the subject, says—"as to the returns for the investment, there can be no doubt of its being as good a stock as any railroad in the State, for the travel, by the way

of Oswego to Canada and the Falls, would alone pay a good dividend. But \$50,000 is now required: Albany, Utica, and Syracuse having, within a week, taken \$80,000 of the stock. Interest will, we understand, be paid on instalments, at the rate of 7 per cent., till the road is in operation."

### Dry Dock at Brooklyn N. Y.

The government Dry Dock, in Brooklyn, N. Y., promises to be a most gigantic and splendid affair, when finished. It is thought, however, that it will cost more than the original estimate of one million of dollars. From the floor of the dock, the side walls of cut granite, 36 feet high, will spring, not perpendicularly, however, but by a succession of steps or "altars," thus allowing the chamber of the dock to increase in width as the walls rise, until the cavity which was only 30 feet wide at the bottom becomes 98 feet at top, and its length, 258 at bottom, elongates into 308 feet at the surface. This portion of the work alone, will require 100,000 stones, beside 4,000 tons of rubble. The dock will, when finished, accommodate a vessel 330 feet long, or the largest ship in the American navy. Its entrance will be closed by two gates, and the water removed by means of six or eight large pumps, each three or four feet in diameter.

### Saratoga and Lake Champlain.

Arrangements have been completed for the immediate prosecution of the railroad which will unite Saratoga Springs with Lake Champlain. The Saratoga Whig says:—

"The contract has been made with Messrs. Schuyler & Bishop, of New York, to complete the road to Fort Ann—on the canal 10½ miles this side of Whitehall—by July 1, 1848, including a heavy iron rail, for \$448,000. The contractors take \$100,000 of the stock in part payment. The effect has been to advance the value of the stock very much in this quarter. The company design to take immediate steps to complete the road to Whitehall, so that, if possible, it shall be completed nearly, if not quite as early as that at Fort Ann."

### Railroad Stocks.

The Boston Courier of Monday has the following quotations of the railway share market:

	Offered.	Asked.
Lowell railroad par \$500	580	590
Nashua do. do. 100	128	130
Concord do. do. 50	68	69
Fitchburg do. do. 100	121	122
Worcester do. do. 100	115½	116½
Maine do. do. 100	110	110½
Providence do. do. 100	104½	104½
Eastern do. do. 100	107	107½
Portland do. do. 100	100½	101
Old Col'ny do. do. 100	98½	99
Norwich do. do. 100	52½	52½

The Courier adds:—The State of Massachusetts having subscribed for its quota of new stock in the Western road, the stock has become firmer in the market, and is now worth one per cent. premium, in view of at least three and a half and possibly four per cent. dividend in July next. It is understood that no further issues of shares are to be made this year, until after that time, and then only enough to pay for about twenty miles of double track, which is to be built on a section of the road which needs it the most.

### Obstructions on Railroads.

At Trenton, on Wednesday last, Wm. Cubberly was tried for, and found guilty of, placing obstructions on the track of the Camden and Amboy railroad. He was sentenced to pay a fine of \$100! His cause of complaint against the company was, that a bull which belonged to him had been killed by the locomotive, and hence, we suppose, he thought he would kill some of the innocent passengers for

revenge on the company. The fine was certainly not at all proportionate to the enormity of the offence.

### Alexandria Canal.

The Virginia House of Delegates have, by a vote of 69 to 34, passed a bill providing for a subscription by the State of two-fifths of the stock of the Alexandria canal—equivalent to \$372,000. A bill is also before the same Legislature, providing for the State's guarantee of \$300,000 of the bonds of the Chesapeake and Ohio Canal company.

### Iron in Alabama.

The business of manufacturing iron is steadily spreading itself in Alabama. The Tuscaloosa Monitor states that beds of the finest ore are found to an incalculable extent in Tuscaloosa county, and it is ascertained to be superior to any in the south or west. An iron master of Tennessee, who compared it with his own, gives it the preference, both for quantity and quality.

### A Sentiment Worthy of Note.

In a letter authorizing a subscription of \$10,000 in his name for the New York and Albany railroad stock, Mr. PRATT, of Prattsville, concludes his brief note by saying, "I am happy to see that you are up and doing. As no dead man does any good, we must do it in our life time."

How few, says the Rochester American, duly consider the shortness of the time given them for doing whatever of good they hope to accomplish in this world! Wealthy men, like Stephen Girard, are too apt to leave for others, the execution of plans of institutions, and public works, which they ought to carry into effect according to their own better judgment.

Regarding man as an active agent for good, he has little claim to the world's respect, who shirks his duty in his life time, and leaves funds to be misapplied, or squandered by those that come after him.

Are there any who would enjoy the high satisfaction of aiding to found a creditable, and most useful University in Western New York? If so remember that dead men do little good, that it must be done, if at all, in your life time. Suppose no one was permitted to do good with his property, how much would it really be worth? By achieving a great good with a small fraction of it, may not the balance, or the whole be rendered doubly valuable? There is great propriety in urging the importance of "being up and doing" whatever our hands find to do, that should be done.

### Disconnecting Railroad Coupling.

Mr. Byington, one of the master mechanics at the U. S. Arsenal, says the New York Farmer and Mechanic, has called our attention to a most useful invention, for the safety of valuable lives. "It is called self-connecting and disconnecting railroad coupling. Too much cannot be said in its favor, in the way of commendation. I must confess, it far exceeds my utmost expectations, and is worthy of publication in all the Journals of the day. I will give some of its qualities. It can be set at any number of degrees so as to suit any or all curves or switches, on any of the railroads, but whenever a car makes any short turn other than the curves or switches, it immediately disconnects itself and lets go, and should one car run off the track, this coupling immediately disconnects itself and lets the car go, while the balance of the train remains on the track. It is also at the pleasure of the conductor or brakeman to disconnect one car from another while the train is at full speed, and the locomotive, with a full head of steam applied to its propulsion. Furthermore, it connects itself by running up one car against another

without the aid of any assistance whatever. I cannot conclude without calling the public, generally, and especially all railroad companies to have the said coupling brought into use. The safety of the travelling public demands it. It is certainly a useful invention for the purpose intended. I will merely add, that the Washington Branch of the Baltimore and Ohio railroad have one of these couplings now in use, and found it to work admirably. It is also very cheap, not exceeding in price the others in use on the same road."

#### Railroad Intelligence.

The Rochester American says that "the project of a railroad from Rochester to Corning, N. Y., through the valleys of the Genesee river, the Honeoye creek and lake and the Cohocton river, strikes us as by far the most direct, cheap and feasible one yet proposed for connecting the northern line of railroads with the New York and Erie; and it is needless to say that it is the one in which Rochester is most deeply—vitaly interested." The route is through an excellent and most productive country, and leads directly to the boundless wealth of the coal region.—There are many weighty considerations in favor of this work, to which we have not time to-day to advert. An account of a meeting of the citizens in relation to this subject, is given at length in our columns to-day.

We learn from the New York Sun that the Hudson River railroad company contemplate a rapid construction of their road. They expect to be able to give employment to eight thousand men as soon as the frost is out of the ground. The road will be commenced at several points simultaneously, and by completing it, as they hope to do, in 18 months, they enhance the value of the property, and make it a par stock almost immediately.

The Long Island route having discontinued its trains for the present, the only route now in operation between Boston and New York, is via Springfield and New Haven. The trip is made with great promptness, and travellers are carried through in admirable time. On Saturday afternoon the train from Boston carried down nearly 200 passengers, three large passenger cars being crowded, even the "Jim Crow" car being full.

An application was made on the part of the associated railroads from Buffalo to Albany, to the Western railroad corporation, for the loan of freight cars, for the transportation of merchandize from the west to Albany. The latter company was obliged to decline the application, on account of a demand for all the cars for the business of their own road. Two thousand tons of merchandize from the Western road, exclusive of 5,500 barrels of flour, were brought to Boston over the Western railroad last week. The increase of receipts upon the Western railroad, in the past fortnight, is about \$10,000.—The gross receipts in 1842, amounted to \$512,688; in 1843, \$573,892; in 1844, \$753,752; in 1845, \$813,480; and in 1846, \$954,000.

Mr. Appleton, the engineer employed in making the survey on the Androscoggin road, arrived with a part of his corps, as far as Winthrop village last Monday. The Maine Farmer says he reports a very favorable chance for constructing a road thus far. The distance on the line thus surveyed from the junction with the Atlantic and Montreal road at Danville, to Winthrop, is 26 miles.

The Bath Inquirer says the engineer of the Kennebec and Portland railroad has completed the organization of his corps, and is now on the route, progressing as rapidly as possible with his duties.

The Savannah Republican says: "We yesterday

received from a friend who resides at Macon, now in New York, a letter, stating that the stockholders of the Macon and Western road, have determined, in conjunction with the people of Columbus, to construct the railroad to Columbus forthwith. It is to be built for cash, and will be completed by the first of January, 1848, if possible. Our informant says there is 'no mistake,' and authorizes us to announce the fact. Three or four directors were to leave N. York immediately to meet the Columbus stockholders on the Flint river."

The Western railway company have petitioned the Legislature of Massachusetts to increase their capital to \$10,000,000, for the purpose of laying a second track; good evidence this of the increasing prosperity of one of the best conducted roads in this country. We are happy to learn that their prospects are so flattering.

We learn from the Bath Tribune, that the subscriptions to the Kennebec, Bath and Portland road now amount to \$800,000. The directors have laid an assessment of five per cent. on the stock to commence the work with.

The Haverhill, (Mass.) Gazette says that the freight train of cars on the Boston and Maine railroad will commence running to Lawrence next Monday. The Merrimack Courier, in reference to the amount of freight it will be necessary to transport over the road, says:

"We have before said that the Boston and Maine railroad must convey hither 150,000 bricks per day, for one hundred consecutive days, for the corporations alone. The transportation of these bricks alone will therefore afford to the railroad upwards of 230 tons of freight per day. The demand for timber, limestone, cement, etc., will amount to quite as heavy a transportation as that of the brick. At the present time the railroad is bringing to this place not over thirty thousand bricks per day, or less than one-third the quantity it ought to bring to supply the corporations. At this rate the road will have discharged its contracts with the companies sometime in 1848."

We have been informed that the Boston and Maine railroad are calculating to forward 900,000 bricks daily, besides other freight, so that we think there need be but little anxiety on that subject.

#### Massachusetts Annual Railroad Reports.

We are indebted to P. P. F. De Grand, Esq., Charles Minot, Esq., and Horace Williams, for a copy each of the Massachusetts Annual Railroad Reports. On referring to them, we find them much more detailed than those of previous years—the result, we perceive, of a law passed near the close of the last session of the Massachusetts Legislature.

We can well imagine that the companies will, for a time, find some difficulty in complying with the requisitions of this law—as it imposes much additional labor upon them—and requires an exposition of their operations—which some are unwilling to make. We doubt not, however, that much good will result to the cause, and that the public will be much pleased, by this new order of things. We give in this number the Sixteenth Annual Report of the Boston and Lowell railroad company, in all its detail, and shall follow it with most of the others contained in the pamphlet—to the number of twenty-eight.

We preface them by giving the Report of the Committee to the Legislature.

#### Commonwealth of Massachusetts.

IN SENATE, February 12, 1847.

The Joint Standing Committee on Railways and Canals, to which have been committed the annual reports of the railroad corporations of Massachusetts,

#### REPORT:

Twenty-eight railroad corporations have made their annual reports and returns. Of these, twenty-one appear to be made substantially in compliance with the Act of April 16, 1846. They do not, in all cases, contain all the details required to be furnished; but, in most instances, the reasons are given for failing to furnish said details.

The reports and returns of the following named corporations are not made in compliance with the said Act; to wit: the Eastern, Old Colony, Fall River, Boston and Maine, Norwich and Worcester, Lexington and West Cambridge. A portion of these are grossly defective.

The number of fatal accidents reported is nine; injuries not fatal, seven. Of the fatal accidents returned, five occurred on the Boston and Providence road, two on the Boston and Lowell, one on the Fitchburg, and one on the Connecticut River railroad. The Committee have reason to believe, that the return of accidents is very incomplete. They have the best reason for saying, that many accidents have occurred, of which no notice is taken by some of the corporations, in their returns.

The Committee deem it of the first importance, that the several railroad companies should so keep their books as to enable them to make their reports and returns in strict compliance with the Act of April 16, 1846; otherwise, that act will be of no practical value.

The Committee recommend that 2000 copies of said reports be printed for the use of the Legislature.

For Committee, S. A. HULBERT.

SENATE, Feb. 12, 1847.

Accepted, and ordered accordingly.

Sent down for concurrence.

CHAS. CALHOUN, Clerk.

HOUSE OF REPRESENTATIVES;

Feb. 12, 1847.

Concurred. C. W. STOREY, Clerk.

SIXTEENTH ANNUAL REPORT OF THE BOSTON AND LOWELL RAILROAD CORPORATION.

To the Honorable the Legislature of the Commonwealth of Massachusetts:

The Directors of the Boston and Lowell Railroad Corporation do hereby make the Sixteenth Annual Report of their acts and doings, under their act of incorporation, in the within return to the form prescribed by the Act of the Legislature, passed April 6th, 1846.

All of which is respectfully submitted.

Wm. Sturgis, Geo. W. Lyman, Joseph Tilden, J. A. Lowell, Jonathan Chapman—  
Directors.

Boston, November 30th, 1846.

SUFFOLK, ss. January 6th, 1847. Then personally appeared the aforementioned William Sturgis, George W. Lyman, Joseph Tilden, John A. Lowell, and Jonathan Chapman, and severally made oath that the within return by them subscribed was true, according to their best knowledge and belief.

Before me, J. THOS. STEVENSON,  
Justice of the Peace.



Return of the Boston and Lowell Railroad, under the Act of April 16th, 1846.

Capital stock	\$1,800,000 00
Increase of capital since last report	
Capital paid in, per last report	1,800,000 00
Capital paid in since last report	
Total amount of capital stock paid in	\$1,800,000 00
Funded debt, per last report	
Funded debt paid since last report	
Funded debt, increase of, since last report	
Total present amount of funded debt	
Floating debt, per last report	100,350 00
Floating debt paid since last report	
Floating debt, increase of, since last report	400 00
Total present amount of floating debt	100,750 00
Total present amount of funded and floating debt	100,750 00
Average rate of interest per annum on do.	5 1/2 per cent.
COST OF ROAD AND EQUIPMENT.	
For graduation and masonry, per last report	557,707 82
For graduation and masonry, paid during the year	
Total amount expended for graduation and masonry	557,707 82
For bridges, per last report	95,498 79
For bridges, paid during the past year	
Total amount expended for bridges	95,498 79
For superstructure, including iron, per last report	683,619 70
For superstructure, including iron, paid during the past year	
Total amount expended for superstructure, including iron	683,619 70
For stations, buildings and fixtures, as per last report	300,393 08
For stations, buildings and fixtures, paid during the past year	7,301 38
Total amount expended for stations, buildings and fixtures	307,594 46
For land, land-damages and fences, per last report	83,464 81
For land, land-damages and fences, paid during the past year	618 98
Total amount expended for land, land-damages and fences	84,083 79
For locomotives, per last report	62,403 68
For locomotives, paid during the past year	
Total amount expended for locomotives	62,403 68
For passenger and baggage cars, per last report	23,663 13
For passenger and baggage cars, paid during the past year	
Total amount expended for passenger and baggage cars	23,663 13
For merchandise cars, per last report	41,171 62
For merchandise cars, paid during the past year	
Total amount expended for merchandise cars	41,171 62
For engineering and other expenses, per last report	84,745 01
For engineering and other expenses, paid during the past year	
Total amount expended for engineering and other expenses	84,745 01
Total cost of road and equipment	1,940,418 00

## CHARACTERISTICS OF ROAD.

Length of road	25 1/2 miles and 59-71 ft.
Length of single track	Nothing.
Length of double track	25 1/2 miles and 59-71 ft.
Length of branches owned by the company, stating whether they have a single or double track	{ 1 1/2 miles and 585-33 ft. [single track.]
Weight of rail per yard in main road	{ 2 m's track 45 lbs. pr. yd. 2 1/2 " " 56 " " 2 " " 63 " "
Weight of rail per yard in branch roads	56 lbs. per yard.
Maximum grade, with its length in main road, [except about 1500 feet of 30 feet per mile grade, rising from the depot in Lowell]	10 ft. per mile for 6-08 m's.
Maximum grade, with its length in branch roads	54 ft. per mile for 5000 ft.
Total rise and fall in main road	189-93 feet.
Total rise and fall in branch roads	73-54 feet.
Shortest radius of curvature, with length of curve in main road, [except about 900 feet of 1200 feet radius, at the depot in Lowell]	2800 ft. R. 1694 ft. long.
Shortest radius of curvature, with length of curve in branch roads, [except two short curves of 500 and 625 feet radius, at the Woburn depot]	1975 ft. R. 662 ft. long.
Total degrees of curvature in main road	665° 1' 43"
Total degrees of curvature in branch roads	107° 40'
Total length of straight line in main road	18 1/2 miles and 834 ft.
Total length of straight lines in branches	1 1/2 miles and 491 feet.
Aggregate length of truss bridges	54 feet.
Whole length of road unfinished on both sides	Nothing.

## BOUNCE DURING THE YEAR.

Miles run by passenger trains	134,633
Miles run by freight trains	59,972
Miles run by other trains	13,236
Total miles run	900,841

Number of passengers carried in the cars	400,886
Number of passengers carried one mile	8,411,437
Number of tons of merchandize carried in the cars	222,931
Number of tons of merchandize carried one mile	5,626,777
Number of passengers carried one mile, to and from other roads	2,483,806
Number of tons carried one mile, to and from other roads	2,878,226
Average rate of speed adopted for passenger trains, including stops, [including special trains]	21 9-10 miles per hour.
Average rate of speed adopted for freight trains, including stops	12 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers hauled one mile	6,397,760
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile	6,052,580

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron	\$32,619 00
For repairs of truss bridges	42 56
For renewals of iron, including laying down	3,541 59
For wages of switch-men, gate-keepers and flag-men	4,241 85
For removing ice and snow	1,121 50
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses	734 80
Total for maintenance of way	42,301 20
MOTIVE POWER.	
For repairs of locomotives	\$11,599 16
For new locomotives to cover depreciation	10,000 00
For repairs of passenger cars	6,750 96
For new passenger cars to cover depreciation	5,484 50
For repairs of merchandise cars	5,180 37
For new merchandise cars to cover depreciation	12,023 68
For repairs of gravel and other cars	1,844 15
Total for maintenance of motive power	52,882 84

## MISCELLANEOUS.

For fuel and oil	30,157 01
For salaries, wages and incidental expenses, chargeable to passenger department	16,801 05
For salaries, wages and incidental expenses, chargeable to freight department	22,998 54
For gratuities and damages	873 73
For taxes and insurance	1,709 30
For ferries	6 00
For repairs of station building, aqueducts, fixtures, furniture	26,567 88
For interest	4,246 87
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company	
For amount paid other companies as rent for use of their roads, specifying each company	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	13,676 03
	117,049 50

## INCOME DURING THE YEAR.

For Passengers:	
1. On the main road exclusively, including branch owned by company	139,505 72
2. To and from other roads, specifying what:	
Lowell and Nashua railroad	\$16,743 40
Concord railroad	26,986 67
	45,729 07
For Freight:	
1. On main road and branches owned by company	197,604 87
2. To and from other connecting roads:	
Lowell and Nashua railroad	\$20,021 04
Concord railroad	46,210 54
	66,231 58
U.S. mails, \$4,856 05. Rents, \$175 00	193,836 45
	5,031 05
Total income	384,102 29
Net earnings after deducting expenses	171,968 67
DIVIDENDS.	
Two of four per cent, each	144,000 00
Surplus not divided	27,868 67
Surplus last year	123,458 90
Total surplus	\$151,327 57
ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:	
Road and bridges	
Buildings	
Engines and cars	

Three serious accidents to persons have occurred on the Boston and Lowell railroad in 1846, viz:

On the 13th of August, Charles Adams, 16 years old, was killed at Lowell, in attempting to jump on to a freight car in motion.

On the 8th of October, Maria Fagan, 17 years old, was killed at Lowell, by being run over, at the crossing of the south sidewalk in Lowell street, by a freight car which was going down the track towards the passenger house.

On the 16th of November, an intoxicated person, in attempting to get on to a passenger car, at the depot in Boston, after the train had started, fell under it, and one leg was crushed by the wheels in such a manner as to require amputation.

#### Monongahela Company.

The recent annual report of the Monongahela Navigation company exhibits the amount of travel over this route for the last two years, as follows:—

	1845.	1846.	Increase.
Through passengers.....	22,727	31,934	12,258
Way passengers.....	30,675	30,268	9,504

Total.....43,501. 65,252. 21,831

This statement shows a very large business in the transportation of passengers. The Pittsburgh Chronicle says:—

"The stage company, of which Mr. J. Meskimen is the agent, on Monday next start three boats which will hereafter run regularly between Pittsburgh and Brownsville. The passage office for Baltimore, Philadelphia and intermediate points, is in the basement of the St. Charles Hotel. One of these boats will leave at 8 o'clock A. M., another at 4 P. M., and the third will do the way business. This arrangement will greatly expedite the quickness of the trip from here to Brownsville, of the passengers going east, and will, no doubt, greatly increase the business of this already favorite line."

#### Boston and Albany Road.

The following statements show the business of the Boston and Albany railway for the last two months, compared with the corresponding period in 1845-6.

	1845-6.	1846-7.
Passengers.....	\$48,717 93	\$30,009 93
Freight.....	77,643 69	109,680 54
Other sources.....	5,242 69	4,948 66

\$131,504 31. 164,638 13  
131,504 31

Increase.....\$33,133 82

#### Chesapeake and Ohio Canal.

The following is an authentic copy of the Act recently passed by the Legislature of Virginia in reference to this company.

*An Act authorizing the State's guarantee to certain Bonds of the Chesapeake and Ohio Canal Company. (Passed March 8, 1847.)*

Whereas, by an act of the General Assembly of Maryland, passed the tenth day of March, eighteen hundred and forty-five, entitled "An Act to provide for the completion of the Chesapeake and Ohio Canal to Cumberland, and for other purposes," the President and Directors of the Chesapeake and Ohio canal company were authorized to borrow upon the bonds of the said company, with preferred liens on its revenues, such sums of money as might be required to pay for the completion of the said canal to Cumberland, under a contract or contracts thereafter to be made by the President and Directors of said company. And, whereas,

it has been represented to the General Assembly of Virginia that in pursuance of the said act, the said President and Directors, under a contract for that purpose, have made arrangements to raise the amount of money necessary for the completion of the said canal to Cumberland, provided the further sum of three hundred thousand dollars can be procured:

Be it therefore enacted by the General Assembly of Virginia, That to enable the said President and Directors, or their contractors, to complete the said arrangements, and to raise the said sum of three hundred thousand dollars in the mode and for the purpose aforesaid, the treasurer of this Commonwealth be, and he is hereby authorized and required to subscribed or endorse the guarantee of this State to the bonds of the said Chesapeake and Ohio canal company, to be issued in pursuance of the said act of the General Assembly of Maryland, to an amount not exceeding three hundred thousand dollars, to the effect following:

"I, A. B., treasurer of the Commonwealth of Virginia, in conformity to act of the General Assembly passed on the day of , in the year eighteen hundred and forty-seven, do hereby pledge the faith of the State for the punctual payment of the interest, and the ultimate redemption of the principal sum of money appearing by the within (or above) bond, according to the terms therein specified.

"In testimony whereof, I have hereunto set my hand and affixed my seal of office, at Richmond, Virginia, this day of eighteen . A. B., Treasurer."

Provided, however, That the said guarantee shall not be so subscribed or endorsed by the said treasurer, until it shall be shown to the satisfaction of the Board of Public Works of this Commonwealth, by the President and Directors of the said Chesapeake and Ohio canal company, or their contractors, that the said sum of three hundred thousand dollars will secure the completion of the said canal to Cumberland, and that the revenues of the said company be pledged by the said act of the General Assembly of Maryland, to the payment of the principal and interest of the bonds issued in pursuance thereof, will, when the said canal shall be so completed, be sufficient for that purpose. Provided also, That the said Board of Public Works shall be further satisfied that the interest which may accrue upon the said guaranteed bonds while the said canal is in the progress of completion to Cumberland, will be paid by the said Chesapeake and Ohio canal company, or their contractors.

This act shall be in force from its passage.

#### Meeting at West Bloomfield.

A large and respectable meeting of delegates from the four counties of Monroe, Livingston, Ontario and Steuben, was held at West Bloomfield on the 4th inst., to take into consideration the subject of constructing a railroad from this city to Corning, in Steuben county, to intersect at that point the N. Y. and Erie, and Blossburg railroads. Hon. THOMAS KEMPSTALL, of Rochester, was called to the chair. Robert L. Ross, of Ontario,

James Smith, of Montee, Thos. Grove, of Livingston, Edward Hall, of Steuben, and Lyman Hawes, of Ontario, were chosen Vice Presidents; and James L. Mosier, of Ontario, and Jasper W. Gilbert, of Rochester, appointed Secretaries.

The number of delegates in attendance was sufficient to fill a good sized meeting house, and all seemed to feel a deep interest in the enterprise for the promotion of which they had assembled from distant counties. As is very natural, the friends of rival routes urged the respective claims and advantages of each with much earnestness. This was done, however, in good temper. Many interesting facts were elicited during the discussion, in which Messrs. Stuart, Traver, Pitts, McGee, Patchin, Z. Barton Stout, Pratt, Patterson, and others participated.

The distance from this city to New York, via the proposed road, is 62 miles less than by way of Albany. The length of the road from Rochester to Corning will be in the neighborhood of 80 miles—more than half the distance is through the valleys of the Genesee, Honeoye and other streams, which water a country of surpassing fertility. The local business in the way of freight and travel which this road will command must be immense, as any one acquainted with the hydraulic power of the Honeoye, and the productiveness of the soil in wheat and other grain will attest. The three counties of Monroe, Livingston and Ontario produced in 1844 no less than 3,078,963 bushels of wheat—With a wide track, heavy rail and easy grades from this city, the heart of the wheat growing region of Western New York, direct to the metropolis of the State and Union, a large freighting business can be done in the season when the canal is closed, if not the year round. If a richer country, or one possessing greater natural resources can be found through which to construct an iron way, than the one indicated, to commence at the lake and river harbor in this city and pass through Monroe, Livingston, Ontario and Steuben counties, we should be glad to see it pointed out.

To reach the summit level of the streams that flow in either direction, north into Lake Ontario, and south into the Susquehanna, the grade of a road need not exceed at any place 30 feet ascent in the mile. Allowing that flour can be carried as cheaply per mile from this city to New York over the Rochester and Corning and N. Y. and Erie roads as it is now transported from Troy to Boston, the expense will be only sixty-three cents a barrel. The distance saved in going directly from this to Corning, rather than by the way of Canandaigua, is 20 miles, beside the advantage of having a five feet track from the steamboat landing in this city, for taking freight from Canada and the great west, and sending it over the N. Y. and Erie road to the sea board.

With its easy grades over the summit into the valley of the Conhocton, this route can be made a great thoroughfare for the commerce of the Lakes, to say nothing of its peculiar advantages for commanding way travel



and freight. It will also be an important link in the iron chain commencing at the western coast of the peninsula of Michigan, if not at the Mississippi river, and running to Detroit, thence through Canada to the Falls, over a suspension bridge, and the Niagara and Lockport road, and on to this city. This route from the Upper Mississippi to the city of New York is many miles shorter than any other, and, as a whole, remarkably level, and is well calculated for quick time, and carrying heavy loads.

The following resolutions, offered by Mr. J. W. Gilbert of Monroe, were unanimously adopted by the Convention in place of those reported by the committee on resolutions:

Resolved, That this Convention is in favor of the construction of a railroad by the most direct and feasible route, from the city of Rochester through the counties of Monroe, Ontario, Livingston and Steuben, to the New York and Erie railroad, at or near Corning, in the county of Steuben.

Resolved, That a committee of three from each county represented be appointed, whose duty it shall be to take the necessary measures to procure a charter for such road; to raise funds by subscriptions in order to an immediate survey of a line of said road, and to make such publications as may be necessary in order to fully communicate to the public the advantages of such road, and to report at a future convention a detailed plan for the construction of such road, including the routes thereof, and the reasons for adopting the same.—*Rochester American.*

#### A Western Railroad.

The *Pittsburg Gazette* gives the following in relation to a railroad west. The remarks will show in some degree, what is the state of feeling in that quarter, in reference to the question which has been the cause of so much interest there for the last year or two—the "right of way."

"We are pleased to learn," says the *Gazette*, "that the public mind in this city, is firmly settling down in favor of expending all our means and energies in the prosecution of a western railroad, and of going to work at once and in earnest. There is, we admit, a disinclination among a few to relinquish all hopes of a connection with Baltimore so long and so fondly dwelt upon. Baltimore, when she cast off Pittsburg so rudely, committed an act of folly, the whole consequence of which she will not probably realize for years to come, and lost the friendship of those who would have gone to any reasonable length to have secured a railroad connection, and a community of interests with her.

"But it is to be presumed she is the best judge of her own interests; at least she has the control of them, and there is not a man in Pittsburg who would solicit a renewal of negotiations after what is past. There is a few, we say, who cannot give up all hope that Baltimore will see her true interests, and accept of the Connelleville charter on Pittsburg terms—none would think of a union on any other. However, the number of such is becoming daily less. We have but little doubt that at the next meeting of the Pittsburg stockholders, they will resolve to give up the

right to connect with Baltimore, and bend all their energies to the western project. It is important that we should relinquish entirely and definitely all intention, and even the power, to connect with Baltimore, that we may secure a loneliness and fixedness of purpose, and avoid the danger which ever flows from divided counsels.

"Baltimore may some day secure the right of way through Virginia, and we owe it to ourselves to hasten to counteract any injurious influence such an event would have upon our interests. Philadelphia will doubtless prosecute her great Pennsylvania railroad with a spirit worthy of the magnitude and importance of the undertaking. We presume she will put it under contract as rapidly as the line can be prepared by the engineers. Let us be prepared to open a railroad to the interior of Ohio, before, or at least by the time she opens one to Philadelphia, and Pittsburg will then be set on a foundation which no railroad terminating south of us can effect.—What, with improvements to the river, and light draft boats, and a railroad tapping all the improvements in Ohio, with the full command of the lake trade, (for Baltimore could not reach the lakes without crossing our road) we should be perfectly secure against all injurious competition, and be placed on a pinnacle of prosperity which no southern improvement could rob us of."

#### "Electro Magnetic Engine."

JOHN H. LALLÉ, Esq., of Pittsburg, has invented a machine which he believes he has so far perfected as almost to demonstrate the practicability of using the electric fluid as a motive power. He thinks he has discovered a practical principle whereby he can use this mysterious, subtle and powerful element, to propel machinery, boats, railway trains, etc. The machine is styled by Mr. L. the "Electro-Magnetic Engine." The *Pittsburg Gazette*, speaking of the invention, says:—

"Mr. LALLÉ informs us that he is now building a large and splendid model machine, of which the 'fly' or balance will weigh 8 pounds. We were favored by him with an examination of a small machine while running. With a small battery it worked to admiration, running very fast. The question is, whether it can be made applicable in practice and on an extensive scale? This is to be solved by further experiments.

"We are met with a usual difficulty in attempting to convey an idea of a new invention without the aid of cuts, or a familiar acquaintance with technical terms. The insuperable obstacle in perfecting all such machines, has been to gain 'stroke.' The motion communicated by the piston of a steam engine to the 'fly' wheel is 'stroke.' We say of a steam engine, it is 2, 4, or 8 feet stroke. In this machine this appears to be accomplished. The magnets are arranged in tiers ascending from the centre. A rack, working on a centre axle, supports strips of iron over the magnets. To illustrate the operation, imagine one of our fire engines at work. The power is by weight alternately applied to levers at each end of the arms. Suppose, instead of levers, there were pieces of iron of broad surface, and a number of

very large and powerful magnets arranged under each end. When in operation, the positive and negative poles of the magnets would alternately attract and repel, and the motion would be the same—precisely like men working it. Here is the power attained.

"From the axle, to which the arms of the rack are securely fastened, an arm extends downwards, and a shaft from the end of that to the end of the crank on the fly or balance wheel, communicates motion to machinery, just as in the steam engine from the end of the piston rod, working on slides. The machinery of Mr. Lallé's is as simple as can be imagined.

"It is obvious that if this engine is ever made applicable to mechanical purposes, it must revolutionize all motive power, except, perhaps, water. There is no waste or loss in its application. It can be started and stopped in a moment. The instant it is stopped all expense ceases. The fuel is simply metal and acids, and the expense for these, from recent discoveries, is reduced to a comparatively small cost. There are many other advantages which we need not enumerate. Of one thing every person who sees it will be satisfied—there is no deception about it. It is understood at a glance. The question of its practical use is yet to be settled. Mr. L. informs us that the small model has power sufficient for a watch maker's lathe. He has lodged a caveat in the patent office to secure his invention."

**Hudson River Railroad.**—The New York papers contain a notice from the Commissioners of the contemplated railroad from N. York to Albany, that the subscriptions to that important work are yet deficient in the sum of \$750,000, to make up the required sum of \$3,000,000. This deficiency must be subscribed during the present week, or the charter, which is said to be more valuable than any that can hereafter be obtained, will be lost.

**Ohio Roads.**—The Columbus Journal of 2d instant, says: "A meeting of the citizens of Franklin county has been notified to be held at the Old Court House, in this city, on the 3d of March, to consult upon the subject of constructing a railroad to connect this city and county with Cincinnati on the south, and Cleveland on the north." The bill, granting charters to the Louisville and Frankfort and Lexington Licking Valley railroad companies, has passed both branches of the Kentucky Legislature.

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

1748

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON**—They are also receiving weekly 150 to 300 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York.

**THE SUBSCRIBERS, AGENTS FOR**  
the sale of  
Codorus,  
Glendon,  
Spring M. and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire-Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Jan. 14, 1846, [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection, in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10139 41f

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by  
**JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 3917

**ENGLISH PATENT WIRE ROPES FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.		INCH.	LBS. OZ.			LBS.	INCH.	Tons.
11	4½	13 5		10	24 -			50	15-16	20
13	3½	8 3		8½	16 -			27	11-16	13½
14	3½	6 11		7½	13 8			17	9-16	10½
15	2½	5 9		6½	9 4			13½	1-3	7½
16	2½	4 3		6	8 8			10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.  
To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] **WILLIAM ROE, Supt of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed.] **G. A. NICHOLLS,**  
Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] **T. L. SMITH,**  
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, [Signed.] **JOHN LEACH,**  
Jamaica November 13, 1845. 1y19 Supt Motive Power.



# **RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

## **TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

## **TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GORRE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138 1/2 Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat.

RICHARDS & CROOKRITT.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 31 of June last of A. S. Marvin, 138 1/2 Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$300 each. For sale by

A. S. MARVIN, General Agent,

138 1/2 Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 190 Meeting street Charleston, S. C.

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# **FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Eliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. B. Cayler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs Baldwin & Whitney, of this city or to Hinkley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844. ja45

## **PATENT HAMMERED RAILROAD, SHIP AND BOAT SPIKES.**

The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 9 to 19 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merrii, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

## **MACHINE WORKS OF ROGERS, KETCHUM & GROSVENOR, PATTERSON, N. J.**

The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, ja45 Paterson, N. J., or 60 Wall street, N. York.

## **PATENT RAILROAD, SHIP AND BOAT SPIKES.**

The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 40 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brown, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

.. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

## **SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, Albany Iron and Nail Works,

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# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

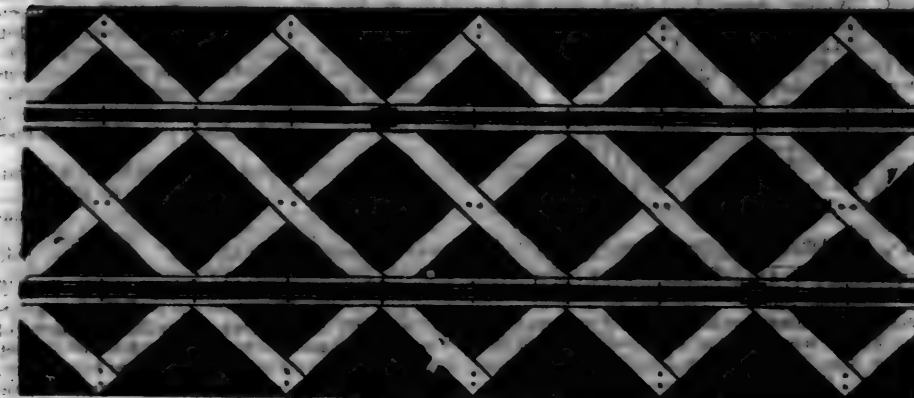


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10/

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,924 Timbers, 11 ft. long, 3 x 6 inches =		
68,696 ft. b.m., at \$10 =		\$686 96
587 Oak joint blocks, 2 ft. x 3 x 15 in. =		
4,403 ft. b.m., at \$13 =		57 24
13,000 Spikes = 2,250 lbs. at 4¢ =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON,**

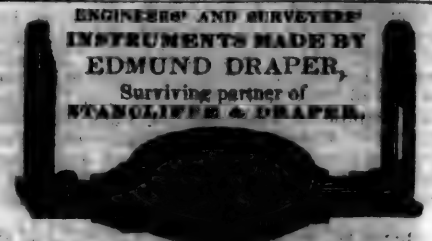
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 351

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor, **D. K. MINOR.**



ENGINEERS' AND SURVEYORS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANOLIFFE & DRAPER.**

No 22 Pear street, below Walnut, Philadelphia. 1y10 near Third.

## LAP-WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25 28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE**

Pres't Mt. Savage Iron Works,

Dec. 25, 1y\* Maryland.

## ENGINEERS and MACHINISTS.

**THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)**

**J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)**

**TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)**

**ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)**

**S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)**

**NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)**

**FRENCH & BAIRD, Philadelphia. (See Adv.)**

**NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)**

**ROSS WINANS, Baltimore, Md.**

**CYRUS ALGER & Co., South Boston Iron Co.**

**SETH ADAMS, Engineer, South Boston.**

**STILLMAN, ALLEN & Co., N. Y.**

**JAS. P. ALLAIRE, N. Y.**

**PHOENIX FOUNDRY, N. Y.**

**ANDREW MENEELY, West Troy.**

**JOHN B. STARR, Philadelphia, Pa.**

**MERRICK & TOWN, do.**

**HINCKLEY & DRURY, Boston.**

**C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.**

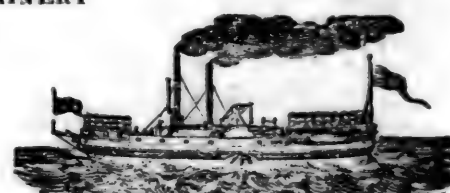


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 13]

SATURDAY, MARCH 27, 1847.

[WHOLE No. 562. VOL. XX.]

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	6 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3 p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.  
31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES CONNECTING** with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I. Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays at 9 o'clock A. M. The Train from Philadelphia arrives at Reading at 12 18 M. The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3 50 and \$3 00		
" " Reading, 58	2 25 and 1 90		
" " Pottsville, 34	1 40 and 1 20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35 ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

### SPRING ARRANGEMENT,

March 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7½ A.M. and 2½ P.M. Leave Portland at 7½ A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 4½ P.M. Leave Great Falls at 6½ A.M.

### HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5-50 P.M. Leave Haverhill at 6½ A.M. and 4 P.M.

### READING TRAINS.

Leave Boston at 9 A.M. and 8 P.M. Leave Reading at 6½ A.M. and 1½ P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 9 A.M., 2½, 5-50 P.M. Leave Medford at 6½, 8 A.M., 1½, 5½ P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

31 ly

CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Joshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M. " Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ly

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing

Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 31 ly J. W. STOWELL, Sup't.

### TROY RAILROADS.—IMPORTANT NOTICE.

Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 11 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

### TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

### BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cummerbund at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$19. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1.60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13y1

### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2y191y

### NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.

Passengers destined for Columbus and Cincinnati, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natchez, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance.....56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance.....88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.....65 "

### TIME.

From Buffalo to Sandusky.....24 hours. Leave Sandusky 5 a.m. to Columbus.....14 " From Columbus to Cincinnati.....15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

### FARE.

From Buffalo to Sandusky, Cabin.....\$6 00 " " " " Steerage.....3 00 " Sandusky to Columbus.....4 50 " " through to Cincinnati.....8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.  
M. & S. C. R. R. Co.

Sandusky City, Ohio.

### NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisiana, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train.] 2 30 p.m. 5 p.m. to Morrisiana only.

Leave City Hall for Harlem, Morrisiana, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train.] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing.] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

### BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3 1/2 p.m. Arrives at.....9 a.m. and 6 1/2 p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12 1/2 p.m. and 8 p.m. Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

### FARE.

Fare to York.....\$1 50 " Wrightsville.....2 00 " Columbia.....2 12 1/2

Way points in proportion.

### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9 Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg... 3 In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....8 1/2 p.m.

Returning, leaves Owning's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

31 ly

### CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred. On measurement goods.....13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$150 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.

On hhd's. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

### THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati.

Take Cars to Xenia, 65 miles; take Stage to Mans-

field, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....\$8 00 " " Sandusky to Buffalo, Cabin.....6 00 " " " " Steerage.....4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced.

B. HIGGINS, Sup't, etc.  
Sandusky, Ohio. M. & S. C. R. R. Co.

### THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

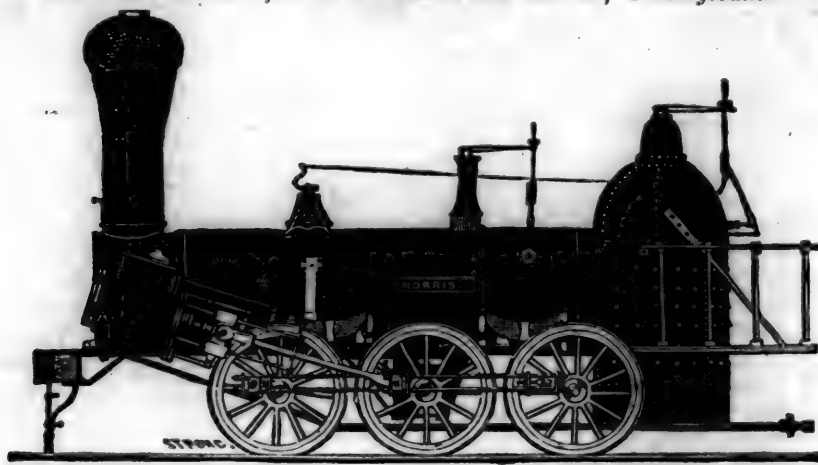
PETER COOPER 17 Burling Slip.  
New York. 1y10



845 N. E. cor. 19th and Market sts. Philad. Pa.

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
"	2,	14	"	"	×	24	"
"	3,	14½	"	"	×	20	"
"	4,	12½	"	"	×	20	"
"	5,	11½	"	"	×	20	"
"	6,	10½	"	"	×	18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON  
Mar. 20th 4 South Front St., Philadelphia. 28th

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches; Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 30 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja46

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 ft in calibre and 3 to 13 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FIRES.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.



**New York and Erie Railroad.**

Report of the Commissioners.

(Continued from page 184.)

Collecting the data that have been presented—we now proceed to give the expense of extra power, and make a comparison of the several routes, on the basis that has been submitted.

**NINEVEH, OR INTERIOR ROUTE.**

The extra power to carry a train due to an ascending grade of 20 feet per mile, up a grade of 65 feet per mile, (the ruling grade on this route,) is 1386, or nearly 1 4-10 engines. We have then,

$40 \times 2 \times 1386 \times 15 = 16632$  cents per mile run with a load of 185 tons;  $16632 \div 185 = 0.9$  cents per ton per mile.

This route is 4.29 miles longer than the Susquehanna or Southern route. For this distance, the whole cost of transportation, exclusive of depot expenses, is chargeable to the Interior route. This, on a ruling grade of 20 feet per mile, ascending in the direction of the greatest trade, is estimated at one cent per ton per mile on the freight carried in both directions. The freight going westward is estimated at one-third of that going eastward, and hence a charge of 1 1-3 cents per ton per mile on that moving eastward, will cover the cost on freight in both directions.

The extra expense all computed on freight going eastward, will be per ton as follows:

On 35 6 10 miles, (length that heavy grade rules) at the rate of 0.9 cents	32.04
On 4.29 miles, extra length of line, and to cover freight in both directions, though only chargeable on that moving east, at the rate 1 1/3 cts.	5.72
Per ton of freight,	37.76

**SUSQUEHANNA, OR RIVER ROUTE.**

The extra power to carry a train due to an ascending grade of 29 feet per mile, up a grade of 68 feet per mile, (the ruling grade on this route) is 1491, nearly 1 1/2 engines: computed on the basis above adopted, is

$40 \times 2 \times 1491 \times 15 = 17892$  cents per mile, run with a load of 185 tons:  $17892 \div 185 = 0.97$  cents per ton per mile.

The length on which ruling grade prevails is 15.66 miles, at 0.97 cents per mile, = 15.19 cents.

**Comparison of the two routes:**

Nineveh route,	37.76
Susquehanna route,	15.19

Difference in favor of Susquehanna route, 22.57

**SULLIVAN COUNTY, OR INTERIOR ROUTE.**

It has been shown that the train will proceed from Deposit to the mouth of Callicoon creek, with a load due to a level, or a grade descending 15 feet per mile; the load being restricted by the return load to 358 tons freight. The extra power required to carry this load up a grade of 45 feet per mile, is 534, or 2 1/2 engines of equal power. We have then,

$40 \times 2 \times 534 \times 15 = 2808$  cents per mile run with a load of 358 tons,  $2808 \div 358 = 0.78$  cents per ton per mile.

The distance on which this grade rules, as before remarked, between the mouth of the

Callicoon and Wurtsboro, is 52.58 miles; but as it is to be compared with the Delaware river line from the mouth of the Callicoon to Port Jervis, it should be taken for extra power, for no greater distance than that between the two latter points, or 48.97 miles. The extra power will therefore be taken for this distance.

The route is 2.61 miles longer than the Delaware river route. The extra length will be estimated the same as that for extra length of the Nineveh route, viz: at one cent per ton per mile on freight each way; or, charging wholly on freight moving eastward 1 1/2 cents per ton per mile.

Summary of extra cost of transportation on Sullivan county route, charging the whole cost on freight moving east.

48.97 miles, at 0.87 cents per ton per mile, =	38.19
2.61 miles extra length, at 1 1/2 cents,	3.48
Total extra cost per ton, over the Delaware river route,	41.67
Extra cost on Nineveh route, as before shown,	22.57

Total extra cost on the interior routes, 64.24

Having determined the extra cost of transportation per ton, caused by the heavy grades and extra lengths, it becomes necessary to ascertain what will be the total tonnage annually transported over the road. The calculations are all based on changing the whole expense of extra power on freight moving eastward; that moving westward being provided for by the method adopted to determine the question. It is therefore the tonnage moving eastward that we want to ascertain the amount of.

The officers of the New York and Erie railroad company, in presenting their views of this question to the commissioners, assumed that 500,000 tons per annum would be transported eastward over the railroad. This position was not controverted by any person interested in the Northern or other routes.

It is not possible to arrive at accuracy on this point; and the commissioners are not willing to say the road will not eventually reach this estimate; but this would be a very large business for a general trade, and much beyond the capacity of a single track road. The question to be determined is, what amount of trade will pass over the section between the Shawangunk ridge and Port Crane, in Broome county.

An estimate of this kind should look to some future period, when the business of the road might reach, not its full capacity, but such as would form an average with the past and the future.

The Baltimore and Ohio road, as now, and for several years past, has been worked about 180 miles. For the year ending September 30th, 1846, there was transported on it, to and from the different points, 193,916 tons, (including the trade in both directions,) equivalent to about 84,000 tons carried over the whole road.

The New York and Erie railroad, when completed, will extend about 260 miles be-

yond Port Crane in Broome county. Now if we suppose three tons carried to Baltimore, to one ton in the opposite direction, there must have been about 145,000 tons moved towards Baltimore. This proportion applied to the New York and Erie railroad, for equal distances, would show about 210,000 tons arriving at the western end of the routes under consideration. Whether these two roads should be regarded as presenting a fair parallel for amount of trade is, however, a question which may admit of a difference of opinion.

The tonnage on the Western railroad, from Albany to Worcester, 156 miles, for the year 1845, was equal to 93,392 tons carried over the whole road. This includes freight in both directions. On this road the freights in opposite directions are more nearly equal than is usual. Judging from the amount received for freight, it appears to be not far from two to one. This would show a result about 13 per cent. greater for the tonnage towards tide water, comparing the distances, than the Baltimore and Ohio railroad. It is to be considered, however, that a considerable portion of this tonnage is from place to place, and forms no part of the through tonnage.

The route traversed by the New York and Erie railroad, is understood to be in general a grazing district, that furnishes freight of greater value but of less tonnage than a grain growing district.

The commissioners have been much embarrassed in forming a satisfactory estimate on the amount of tonnage. It does not appear practicable, from any data in their possession, to reach any definite accuracy, and their estimate must be considered as in a great measure conjectural.

The amount assumed by the engineer of the company is regarded as too high, to form the basis of comparison between the several routes. The commissioners have assumed 200,000 tons as the annual amount of freight that may be expected to move eastward over that portion of the road embraced in this question of location; this they think as high an estimate, as they are warranted to make for this comparison.

It has been shown, the cost of transportation will be 64.24 cents per ton, (computed wholly on freight moving eastward,) greater on the interior routes than on the river routes.

This rate on 200,000 tons per annum is, 200,000 tons, at 64.24 cts. per ton = \$128,480.

The passenger trade will feel the unfavorable influence of the heavy grades, and will require extra power, or the train must proceed over them at reduced velocity.

The excess of curvature on the Nineveh, and the Sullivan, or interior routes, over that on the river routes is 3903, degrees, or equal to 10.84 [nearly eleven] entire circles. The excess of curvature is mostly on radii of less than 1000 feet, and frequently occurs on the heavy grades. It will no doubt increase the expense of power. The commissioners are not aware of any definite data, by which this question can be reduced to computation.—Heavy curving on railroads is regarded to be

the next unfavorable thing to heavy grades; and great expenses are often incurred to reduce the curves to large radii, or dispense with them altogether.

Not only is more power required to move the train; but the displacement and wear of rails; and the wear of cars and engines is much greater on sharp curves than on a straight line. On the Nineveh and Susquehanna lines, an allowance of 10 feet per mile, or 15 per cent. was made for the curve lines: whether this is sufficient for the extra power is doubtful. On the Sullivan county lines no such allowance was made. If it had been, it would have increased the maximum grade in the same proportion. If the same rule be applied to this, it will raise the total cost of extra power to nearly 70 cents per ton.

Regarding the extra wear of rails, cars and engines, this great excess of curvature, though not susceptible of a definite reduction, must be considered as a very serious objection to the interior lines, when viewed only in connection with the freight business. Its influence on the passenger trade, exposing the cars to leave the track, causing greater wear to the road and machinery, and restricting the speed of travelling is still more serious.

The interior routes will be more obstructed by heavy snows, (especially that in Sullivan county) than the river routes, which will increase the expense of running, and cause delays that will be prejudicial to the business of the road during the winter season.

Heavy grades cause extra wear on the rails, cars and engines, from the more frequent and severe application of the friction brake to control the latter in their descent. The cars on the heavy grades would not stand still, without being secured, and consequently any accident by which a car should get loose would allow it to move off with great velocity, putting at hazard its own safety, and that of others that might be in its way. Any circumstance that should disable an engine in ascending a heavy grade, such as the slipping of the wheels, or the machinery suddenly getting out of order, would put the whole train at hazard.

On a long line, where the passenger traffic will be important, the excess of heavy grades and curvature on the interior routes, will have a material influence on the economy and usefulness of the road.

The several points of disadvantage that appertain to the interior routes, as above considered, viz: the influence of the great excess of curvature on the freight traffic, together with that of the heavy grades on the passenger traffic, the greater exposure to heavy and drifting snows, extra wear of rails, cars and engines on the excess of heavy grades and curvature, with the greater hazard of accident and consequent damage—are of a character that does not admit of any definite

reputation. They are, however, of such importance, that heavy expense, where a change of route is practicable, may well be incurred to avoid them. That they materially impair the value of a railroad is beyond question. After careful consideration, the commissioners have come to the conclusion,

that collectively, they will not be less than half the amount before stated, as the excess on the freight traffic caused by the excess of heavy grades.

The total amount of excess chargeable, as before presented, to the interior routes, is: on Freight, arising from heavy grades, \$128,480  
Items above enumerated, collectively assumed at 50 per cent. of the above,

64,240

192,720

From this there must be deducted:

1st. The extra cost of constructing and maintaining the southern line.

2d. The annual tax imposed by the State of Pennsylvania.

In relation to the first, the estimates of the engineers show the extra cost to be \$19,821. To this must be added the interest that will accrue on the expenditure until the road is in operation, and receiving income from its business. This will, of course, depend on the vigor with which the work is prosecuted, and the facility with which its traffic may be advantageously commenced. It is supposed 10 per cent. on the whole sum, would provide for all the accruing interest, making the capital invested for this item, \$571,803. The river routes, more particularly that along the Delaware, from the heavy bridges that must be maintained, and from the exposure of the work to the floods of this river, will be more expensive to keep in repair than the interior routes. This item is estimated at \$15,000 per annum.

The second item, the tax imposed by the State of Pennsylvania, is chargeable when the whole road is completed to Dunkirk, or connected with some road leading to Lake Erie.

This annual bonus will not, therefore, be chargeable until the road is in full operation.

The annual charge will be as follows:

Interest on \$571,803, at 6 per cent., \$34,308

Annual repairs, excess, 15,000

Bonus to Pennsylvania, 10,000

\$59,308

Summary of excess:

On the interior routes, \$192,720

On the river routes, 59,308

\$252,028

Showing that the annual expenses on the interior routes will be \$252,028, greater than those on the river routes. This result has been reached, after carefully considering and yielding every advantage to the interior routes which can be regarded as belonging to them. The mode of working on which the calculation is based, is the most favorable to them, involving the most careful attention to the economy of motive power; and the commissioners feel constrained to say, that they have serious doubts whether a more expensive arrangement in relation to motive power would not, on account of greater simplicity, be found more expedient in practice.

Herewith are submitted a map and profile marked A, of the Nineveh and Susquehanna

lines; a map and profile marked B, of the Sullivan county and Delaware river line; a profile marked C, of the several routes from Binghamton to the Shawangunk summit; and a profile marked D, of the whole line of the New York and Erie railroad, from Piermont to Dunkirk. These have all been prepared under the directions of the commissioners, and from surveys, also under their directions, except the general profile, which is from such surveys only on those portions that have come under the examinations of the commissioners. From these maps and profiles a good idea of the general features of the several routes may be obtained.\*

Tabular statements of the results of the surveys by Henry Tracy and Jas. O. Morse, Esqrs., the engineers employed by the commissioners, are also herewith submitted.

The commissioners are required to take into consideration "the terms, conditions," etc., of the Act of Pennsylvania, authorizing the New York and Erie railroad company to construct a portion of their road in that State.

There are several conditions in the Act of the Legislature of Pennsylvania that are peculiar, and require the notice of the commissioners.

*First.* The railroad, if constructed along the Delaware river, is required to "be so constructed as not to obstruct the rafting navigation, nor contract the natural flow (and expansion) of the Delaware river (at high floods) nor injure the works," etc., of the Delaware and Hudson canal company; and in relation to the point of crossing the Delaware river. Similar provisions are contained in the act of this State, which constitute this commission.

On all these points, the engineer employed by the commissioners was instructed to conduct his surveys and make his estimates with a view to a full compliance with these provisions.

*Second.* The third section of the Act of Pennsylvania requires certain laws to be passed by the Legislature of this State; it also requires from the New York and Erie railroad company, conditions in relation to the conduct of their business, which have been considered matters for said company to look to before they could legally locate their road in that State; but not requiring the attention of this commission.

*Third.* The 5th section of said Act requires that after the said railroad is completed to Dunkirk, or connects at its western termination, with any improvement extending to Lake Erie, said company shall pay to the State of Pennsylvania \$10,000 per annum. This is presumed to be the main condition to which the attention of the Commissioners was called, and they have placed it, as an annual charge against the routes in that State. It is certainly an onerous and extraordinary burden to be imposed on a company, for the privilege of constructing a work, that in its results, must be a great benefit to a large portion of the citizens of that State; but it is a condition, and the Commissioners can do

\* We only give the profile of the several routes, from the Shawangunk to Binghamton.



no less than place it to the debit of those routes.

By the Act of May, 1846, the Commissioners are directed to take into consideration "a comparison of the grades or elevations, and depressions and curvatures, in the line or track of said railroad, in the other counties east and west of Sullivan county."

The Commissioners have no means of judging of the curvatures east and west of Sullivan county, except on the routes surveyed under their directions, which no curvatures so unfavorable in degree, nor much exceeding half the amount, as compared with equal distances.

There are grades both east and west more unfavorable than occur in Sullivan county; and it was contended by the friends of the interior route in that county, that this was sufficient, under the act, to settle the location on that route. Now, (as stated in the preliminary remarks of this report,) it was a matter of public notoriety, before the Act was passed, that grades equally heavy as those in Sullivan county existed both east and west of it; but as this question has been discussed and the views of the Commissioners given, in the preliminary part of this report, it is not deemed necessary to enter into further detail here on this point.

If the heavy grades in this county were so situated, in relation to the heavy grades east and west of it, that no material benefit could be obtained by avoiding them, then the construction of the Act above given by the friends of the Sullivan county route, would no doubt be in accordance with the intention of the Legislature. But inasmuch as they are so situated, that heavy extra expense would be incurred in conducting the traffic of the road over them, such construction would be equivalent to the position, that, serious obstacles on one part of the line were sufficient reason that others of the same kind constitute no impediment to the enterprise, which position is considered as inadmissible, in view of the general object of the Act. It is well known that the heavy grades which occur on several parts of the route of the New York and Erie railroad, have been great impediments to the progress of that enterprise; and consequently its friends have endeavored to reduce such obstacles as much as possible. The application for the law, establishing this commission, had its origin in this effort; and the original law, (of which the present is an amendment,) had a reference to the same object, namely: to remove some of the impediments, (of this character,) to the progress of the improvement. The Commissioners are therefore fully of the opinion, that the construction they have given to the Act, is the proper one, namely: that "this fact is to be candidly considered, and to have its due influence on their decision, but cannot control irrespective of all other facts that bear on the question;" and especially, cannot do away with the main object of the Act, which was, to determine whether those grades could be adopted "without great prejudice to the public interest."

The Commissioners are further required

to take into consideration, "the several acts of the Legislature of this State in granting aid to the said company, and especially the provisions of the Act, mentioned in the first Section of this Act."

The Act incorporating the New York and Erie railroad company was passed in 1832. It authorized the construction of a railroad through the southern tier of counties, and forbids any connection with railroads in the States of Pennsylvania and New Jersey, without the consent of the Legislature of this State. Stock, sufficient to organize the company not being obtained, a subsequent Act was passed, authorizing an organization, when one million of dollars was subscribed to the stock. No progress having been made in 1834, the Legislature authorized a survey of the route for said railroad at the expense of the State. In 1835, an Act was passed authorizing the company to construct and put in operation such sections of the road as they might deem eligible.

The powers and privileges granted by the several Acts of the Legislature, and the prospects of remuneration from the business of the road having failed to command private capital sufficient for the work, "an Act to expedite the construction of a railroad from New York to Lake Erie," was passed in 1836. This Act authorized a loan of the State credit for three millions of dollars, to be advanced in several sums, on the completion of certain sections of the said railroad.

This Act did not secure much progress in the construction of the road. Private capital could not be obtained sufficient to complete the "first section" of road necessary to obtain any portion of the loan of the State credit.

In 1838, the Legislature passed an Act to amend the Act of 1836, above mentioned. This act authorized the loan of the State credit to be made, in equal sums with, and after the expenditure of, private subscription; to commence after the company should expend three hundred thousand dollars.

In 1840, an Act was passed to amend previous acts; authorizing a six per cent. State stock to be loaned to the company, and the stock to be issued, on the expenditure, by the company, from their own means, of half the amount of the same.

Under this act the company proceeded with the work until the loan on the credit of the State was issued, to the amount of three millions of dollars, as authorized by the several acts above mentioned. Failing to command the requisite means to carry forward the enterprise from subscriptions to the stock of the company, after the State loan was exhausted, they were unable to proceed with the work, and early in 1842, notified the State authorities, that they were unable to pay the interest on the State loan. The circumstance authorized the comptroller of the State, to sell the road and its appurtenances after six months notice. The sale was postponed by the authority of the Legislature. At this time, the company were practically insolvent, and had no more than a nominal existence. But the Legislature did not seem disposed to abandon the project, and in 1843,

passed a law authorizing the said railroad company, to issue bonds to the amount of three millions of dollars, and giving these bonds priority to the State lien. Also providing, that the State may take the road on certain conditions, when finished; and if the State should not elect to take the road on such conditions, then, the said company to be released from all liability for the payment of the State stock heretofore issued to them, and amounting to three millions of dollars. After the passage of this law, a new Board of Directors were elected composed of highly intelligent, honorable, and influential citizens, who made vigorous efforts, to raise funds necessary to carry forward and complete the enterprise. Capitalists, however, did not feel sufficient confidence in the success and productiveness of the enterprise, to furnish the necessary funds; and the board who had taken the direction, finding they were not sustained in their efforts, yielded the administration of the affairs of the company to others. Nothing, however, in the way of progress was accomplished, and the work remained stationary until 1845. At that time, it became obvious, that no further progress could be made by private enterprise, unless inducements could be presented that would secure a large addition of subscriptions to the stock of the company, under which a new organization could be effected, and a new impulse given to the project. This was the condition of the enterprise, when the act of 1845 was passed—the act we are called upon particularly to consider.

This act passed May 14th, 1845, provided that a new subscription to the stock of the company should be obtained to the amount of three millions of dollars, and under certain restrictions, bonds were authorized for a like amount. It provides for a release of the lien of the State on account of the loan of its credit for three millions of dollars, provided, a single track road be completed within six years from the passage of the act. It established a commission of three persons, who were authorized to survey and examine the routes between the summit of the Shawangunk and Deposit, and decide whether a practicable route did exist; and one that could be adopted "without great prejudice to the public interest;" but did not authorize any location out of the State as a substitute for that through Sullivan county.

The same commission was authorized to examine the routes between Deposit and a point one mile westerly of Binghamton, with power under certain circumstances, to locate on the route by the great bend of the Susquehanna, passing so far in the State of Pennsylvania as might be necessary for that route.

At the time this act was passed, an act had been passed by the State of Pennsylvania, authorizing the said company to construct a portion of their road in that State, so far as necessary to occupy the route by the Great Bend of the Susquehanna; but they had not authorized the company to occupy any portion of that State in the valley of the Delaware river.

To induce the subscription of three millions, and thereby secure the completion of the railroad, the Legislature of 1845, by the act above-mentioned, prospectively gave up the lien of the State for the three million loan on the conditions above mentioned: they authorized under certain restrictions the railroad to pass through a portion of Pennsylvania, and thereby secure a more favorable line; also to consolidate the old stock.

Under this act the company and its friends undertook to revive the affairs of the enterprise. The first proceeding was to obtain the subscription of three millions of dollars, to the stock of the company: without this, nothing could be done. The steps taken to procure it, showed that many persons were more ready to advocate the project, than to furnish funds to carry it forward; and (notwithstanding the State prospectively released its lien on the road—the old stockholders submitting to a loss of half their stock—having the prospect of being allowed an improved route for an unfavorable portion of the line,) they did not succeed in accomplishing this preliminary step, without great efforts, continued for months together; and their final success may be attributed far more to the general influence the road was expected to produce on the trade of New York, than to the dividends that would be made from its earnings.

The Commissioners can regard the law of 1845, in no other light, than as emanating from a desire on the part of the Legislature to offer such inducements to private capital, as would be sufficient to secure the early accomplishment of this great improvement, and thereby afford to a large district of the State, now very much secluded, the means of easy communication to and from our great commercial centre. Subsequent events have proved that, the inducements offered were barely sufficient to obtain the requisite subscription, upon which the new organization has been established. To show the slender hold the new subscription had on the stockholders, it is only necessary to mention that, before and at the time the decision of the Commissioners was made on the question of location, shares of stock, on which \$20 had been paid, could be purchased in the market for two dollars. In this state of the affairs of the company, they were not in a condition to encounter difficulties, which they regarded as onerous and unnecessary, and from which they had indulged the hope of being relieved. The commissioners cannot say the work would have been abandoned if their decision had confined the line to this State; but under the circumstances that existed, they were of opinion, that such a decision would have put in jeopardy the progress of the enterprise.

It was clearly the intention of the Legislature to confine the route to this State, unless it should be found there were urgent considerations for carrying some portion of it thro' Pennsylvania, and the Commissioners were without exception extremely desirous of confining the location to this State. It was an unpleasant duty to carry the line into another State, that demanded compensation for the

benefits that would be conferred on her citizens, while a portion of our own, that had contributed their exertions to secure its benefits, were thus deprived wholly, or in part, of the anticipated advantages. The law, however, under which this commission was established, contemplated the contingency of such decision. It was doubtless framed in view of the necessity that might be found to exist, to abridge the benefits to a comparatively small number, in order to make it more beneficial to the public, and to secure the accomplishment of a great work, that would confer its benefits on a large portion of the population of this State.

To illustrate the views of the Commissioners as to the influence the extra cost of conducting the traffic, will have on the prosperity of the project, they remark:—

*First.*—It cannot be expected that an enterprise of this magnitude will be undertaken by private capital, without a fair prospect of reasonable remuneration for the outlay required.

*Second.*—If the road be constructed in such a manner as to involve large expenses in conducting a given traffic, such expenses must be charged to those interested in the traffic; and consequently the value of the improvement to the community, who use it, depends on the economy with which its business may be conducted.

*Third.*—Whatever tends to increase the cost of conducting the traffic of a road, reduces its power of competing with other roads, or other modes of conveyance, and consequently diminishes its prospect of business, and the inducements to prosecute the enterprise.

*Fourth.*—The facts and computations before presented, show that the interior routes would involve annually, a heavy extra expense; materially affecting the prospects of the enterprise, and consequently hazarding its success.

The legislation of this State, is a full demonstration of the difficulty that has attended every effort to obtain from private sources, the funds necessary to carry forward this work, and the necessity of relieving it from every natural impediment, in order to accomplish the main object for which it has been undertaken. And although in the origin of the enterprise the Legislature was disposed to confine the line strictly to this State; in the progress of the undertaking, subsequent Legislatures have found it expedient, in order to secure to a large portion of the State its benefits, to recognize the possible necessity of some departure from the original design; and hence the establishment of this commission to ascertain the facts, and make such decision as the exigencies of the case should require.

That the river routes, when contrasted with the interior routes, have the decided advantage, cannot admit of a doubt; and with that fact established, the only remaining question which presented itself, was, whether the Commissioners were authorized by the Act to sanction those routes.

The Commissioners were required to adopt the interior routes, provided it can be done

"without great prejudice to the public interest," etc. In arriving at this conclusion, they are required to consider:

*First.*—"The public interest of this State." The public interest is doubtless promoted by the adoption of the route that will be most likely to secure the early construction of the railroad, and render the improvement most beneficial when completed. From the considerations and comparisons presented in the preceding pages, the Commissioners believe the interior routes, if adopted, would be greatly prejudicial "to the public interest of this State."

*Second.*—"The interest of the citizens of this State, who in their (the Commissioners') judgment will be effected by the construction and location of said railroad, collectively considered." In examining this branch of the question, the Commissioners do not propose to notice remote interests.

There is no doubt a considerable number of citizens of this State that will be affected by the road, beyond the limits that are considered as specifically demanding consideration; but, as these will have about the same relative bearing on the question, with those more directly interested; it is not considered necessary to refer more particularly to them.

It can hardly be said that any portion of the citizens of the southern tier of counties, will be injured by the construction of the railroad on either route. Some portion will be less benefited by the adoption of one route, than by the adoption of the other; and comparatively a very small number on either route may not be benefited at all, except the road be constructed on the particular route in which they may be interested. The latter can only be those, who are so situated, that they would only use the road in the event of its being constructed on the route nearest to them. The great mass of the citizens in the southern tier of counties, must be benefited by the construction of the road on either of the proposed routes, and consequently are interested in such measures as will secure its early completion.

The total number of citizens residing on the routes affected by the question of location, or so near, that their trade after the construction of the railroad, would seek it as their avenue to market, is estimated by the census of 1845, at 294,599. Of this number 45,592 will be less benefited by the adoption of the river routes, than by the adoption of the interior routes: and 249,007 will be more benefited by the adoption of the river routes, than by the adoption of the interior routes; or, the ratio is nearly as 16 is to 84. Of those who will be less benefited by the adoption of the river routes, about 72 per cent. will have the benefit of the river route on the Delaware, which will be common to them with citizens west of Binghamton, and will materially lessen their diminution of benefits. The amount of diminution of benefits, compared with equal population, appears on the average, to be about the same whichever route be adopted.

There is another portion of the citizens of this State who are directly interested in this



# Profile of the New York & Erie Rail-Road.

(From the Shawangunk Ridge to Binghamton.)

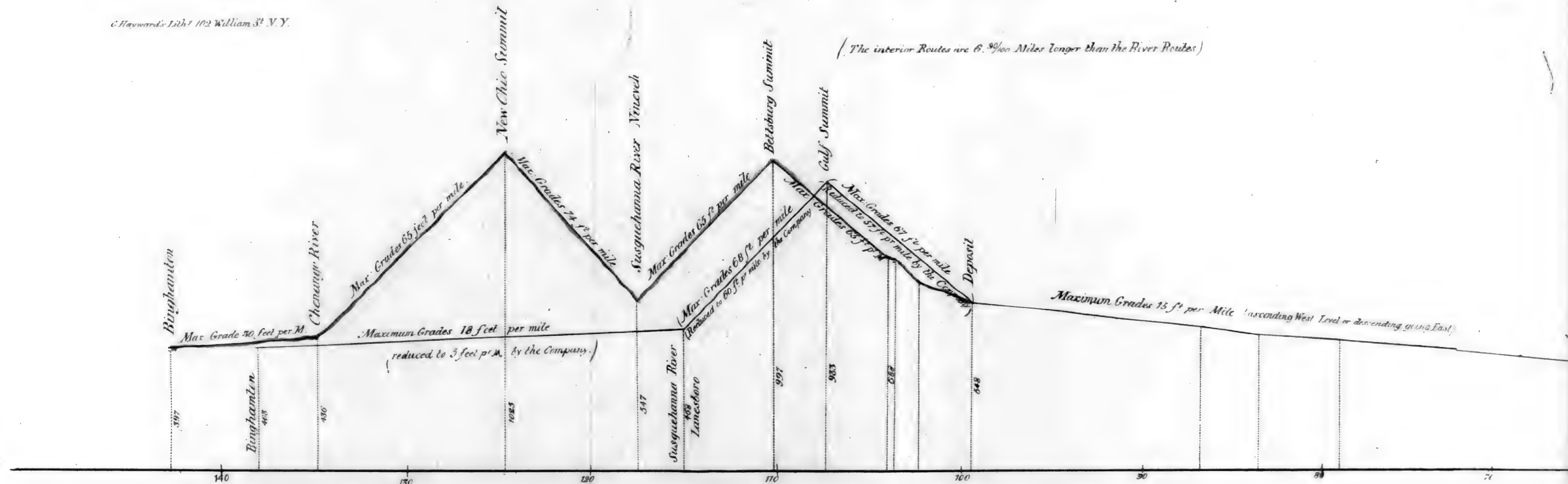
NOTE. This is a true Copy of the Profile accompanying the Commissioners Report; — with additional remarks which are enclosed in brackets.

(Reference. The Red Line denotes the interior Routes.)

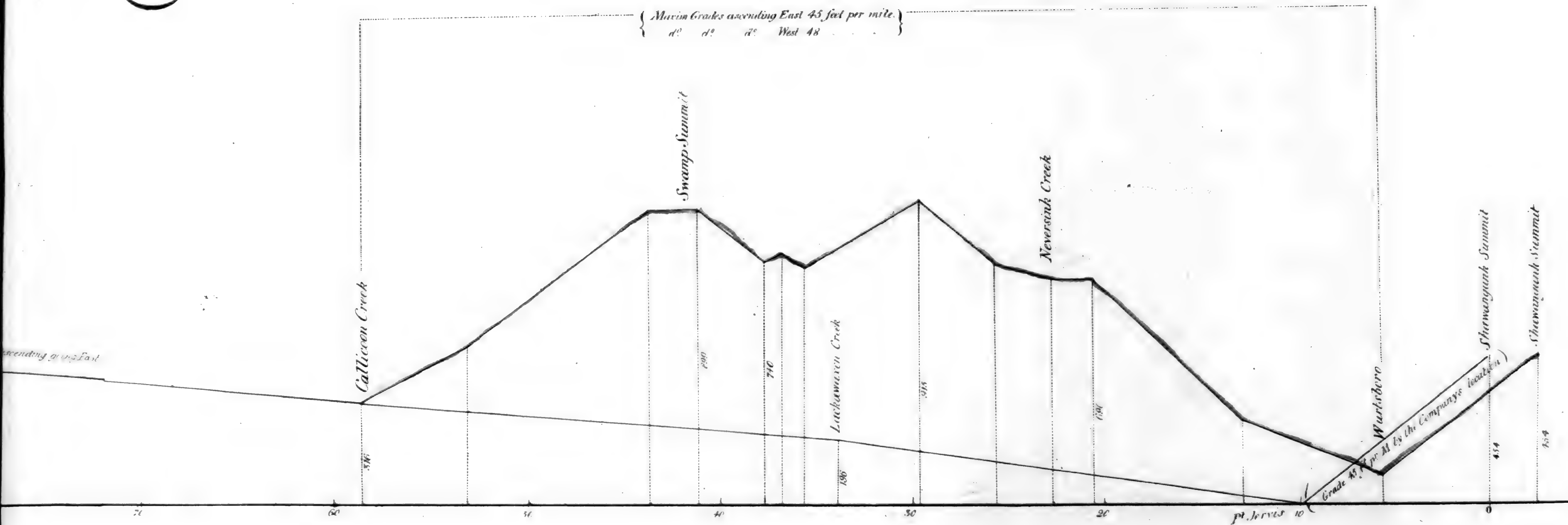
(C)

C. Hayward's Lith. 102 William St. N. Y.

(The interior Routes are 6.90/100 Miles longer than the River Routes)



(C)





question of location, namely: those resident in the city of New York.

This city has an interest in enlarging and securing the trade of the district that will be affected by the construction of the railroad; and it looks not only to that portion in this State, but also to that which will come from the northern part of Pennsylvania (numbering about 100,000 people by the census of 1840) and from Lake Erie. The citizens of New York city, cannot be overlooked in considering this question; they are a portion of this State, and have an equal right to be considered under the Act, so far as their interests are involved: they are chargeable in all cases of State tax, in which they contribute about one-third of the total amount collected by the State. That their interest is peculiarly important in this enterprise, is manifest from the fact, that almost the entire reliance, so far as individual means are required, must depend on them. Whatever risk of private capital the undertaking involves, it must fall on them. The road may be a great benefit to the district through which it may be constructed, and yet afford a very inadequate return to the private capital invested in its construction. A due regard to this interest is not only important and proper in itself, but also as affecting the entire success of the project; as may be inferred from remarks in a preceding part of this report. The interest of the city of N. York, whether regard be had to the benefit its trade will derive from the operation of the road, or the remuneration the traffic will afford for the capital invested in its construction, will be best promoted by the adoption of those routes, that will secure the best and most expeditious means of communication.—This city therefore will be most benefited by the adoption of the river routes.

The adoption of the river routes greatly improves the general prospects of the railroad; and presents very fair prospects for its early completion. The adoption of the interior routes would materially diminish its usefulness and value, if constructed; and moreover, by the discouragement it would throw on the stockholders would hazard the success of the enterprise. The latter remark cannot be regarded as unimportant, when it is considered, that the new stock of the company, can now be purchased in the market at 20 per cent. discount, though only 25 per cent. has yet been paid in.

In view of the facts that have been presented, and the reasoning based on those facts, after careful deliberation, in full board, a majority of the Commissioners decided, that the interior routes, through Sullivan and Broome counties, could not be adopted for that portion of the said railroad, "without great prejudice to the public interest of this State, and the interests of the citizens of this State, who in their judgment will be affected by the construction and location of said railroad, collectively considered." And in accordance with the requirements of the act, they have filed such decision in the office of the Secretary of this State.

John B. Jarvis, Horatio Allen, Jared Wilson, William Doweay.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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#### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

#### Boston and Maine Railroad.

The Twelfth Annual Report of this road will be found in this number. In its details it is in the prescribed form required by the Legislature. We shall continue to publish these reports, in their new form, that they may hereafter be referred to for comparison.

#### Slag and Iron.

##### Relative Proportions of Each.

The information contained in the following extract from a letter written by Mr. WM. FIRMSTONE, of the Glendon Iron Works, at Easton, Pa., may be useful to some of our readers. We are desirous of making the Journal useful in this line, and shall be much obliged by any communication giving useful information on the subject.

"I have been frequently asked how much cinder is usually made in making a ton of pig iron; having had occasion to weigh all the cinder made at our No. 2 Furnace for the last six months, I find it to exceed in weight the iron made about one-fifth. I annex a statement of the total number of tons of materials used in the Furnace, from Sept. 6, 1846, to Sept. 6, 1847—being 26 weeks.

Coal, iron ore and limestone used....10,156 tons.

Pig iron made.....2,085½ "

Slag, or cinder.....2,512 "

4,597½ tons."

#### New York and Erie Railroad.

We complete, in this number, the Report of the Commissioners appointed by the Legislature of New York to decide upon the location of this road. We give the profile of the different routes proposed—which, with the able report of the majority of the Commissioners, will, we think, satisfy every disinterested and unbiased person that the decision is a just one.

It will not, in this enlightened age, be allowed that the private and local interest of a few persons shall impose upon the whole business community a heavy tax, in the way of hauling the vast amount of produce and merchandize on railroads over the

hills—as in former years on the common and turnpike roads of the country.

#### Later from Europe, and the Iron Trade.

We have received, by the *Hibernia*, our London railway journals and periodicals to the 1st of March. They, however, contain little that is new or interesting.

The prices of iron vary but little from the last reports—rails being quoted on the 20th of February at £9 15s. to £10—and on the 27th at £9 10s. to £9 15s. Welsh cold blast at £5 5s. to £5 10s., and very little doing.

A correspondent of the Mining Journal says that, "Very little done this week in Welsh and Staffordshire, but several sales have been made of Scotch pig at 73s. 6d. to 74s., cash, for mixed Nos. and this market is looking firmer. Swedish is in more request, and about 450 tons were taken up yesterday." And Messrs. Whitcomb & Barton say that, "The demand for all kinds of manufactured iron continues good—prices unaltered; Scotch pig iron has been slightly dealt in during the week, it is reported at rather better rates. The market, however, is very quiet, and scarcely any disposition manifested to buy at quotations, except small lots for immediate consumption. English copper is in demand at the late advance, which it is believed will be firmly maintained. English lead is looking up, and very fair business doing. Tin plates continue dull of sale. In other metals, no alteration."

"The Glasgow pig iron trade was said to be, on the 24th, rather inert—prices for some time have continued nearly stationary. There is very little demand at present rates; yet, about 1s. under our quotation would find buyers to some extent. We have seldom seen less iron pressing on the market; holders are buoyed up with the hope of having a good spring demand, which prevents any further decline in prices for the present. Since our last, there have been few transactions, at 73s. 6d., and 74s., of mixed Nos., cash. To-day 74s. 6d. is the price asked. Contracts to some extent, for delivery at midsummer, have been made at 75s."

LONDON, FEBRUARY 26, 1847.

	£.	s.	£.	s.	d.
Bar a Wales—ton .....	0	0	9	0	0
" London .....	0	0	10	0	0
Nail rods .....	0	0	10	10	0
Hoop (staf.) .....	0	0	12	0	0
Sheet .....	0	0	13	0	0
Bars .....	11	0	11	10	0
Welsh cold blast foundry pig. ....	5	5	5	10	0
Scotch pig b Clyde .....	3	13	3	15	0
Rails, average .....	9	10	9	15	0
Russian, CCND e .....	0	0	0	0	0
" PSI .....	0	0	0	0	0
" Gourieff .....	0	0	0	0	0
" Archangel .....	0	0	13	10	0
Swedish d, on the spot .....	11	10	11	15	0
" Steel, faght .....	0	0	17	0	0
" " kegs e .....	15	0	15	10	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ½ and ¾ inch.

#### General Railroad Law.

The act to authorize the several railroad companies of the State of New York to raise money for the purpose of substituting the heavy iron rail for the flat bar now in use, which was introduced into the Senate by Mr. Williams, authorizes the directors of the several companies to borrow any amount, not to exceed \$10,000 per mile on the security of the several roads and appurtenances to carry out this object. The bill imposes a penalty in case the companies do not commence the work before the 1st day of January, after the passage of the act. In case the work is not done, the companies will not be al-

lowed to divide more than three per cent. per annum on the capital stock paid in for the present year, 1847, nor more than one per cent. per annum for each succeeding year; the surplus dividends to constitute a sinking fund, to be applied to the laying of the heavy rails. The neglect or refusal of the companies to substitute the heavy rail within three years, will be deemed to work a forfeiture of their charter. The act to take effect immediately. The bill is in charge of the railroad committee.

#### Fitch and Fulton.

We find in the last number of the Saturday Courier, a most excellent article upon the subject of steam and steamboats—which, but for its extreme length, we should have been happy to place before our readers. Its conclusion, as relates to Fitch and Fulton—the pioneers in this great modern discovery—we give below.

"Rumsey, as well as Fitch, attempted to construct a steamboat as early as 1783, and models of both their contrivances were exhibited in 1784, to Gen. Washington.

"Fitch's apparatus was a system of paddles working at the sides, like boat-oars. Rumsey at first used a pump, which drew in water at the bow, and forced it out at the stern of the boat. The latter afterwards employed poles, set in motion by cranks on the axis of the fly-wheel of his engine, which were intended to be pressed on the bottom of the river.

"About 1798, both applied for patents in England, but Rumsey alone, by the aid of influential friends, obtained one. He constructed a boat to run on the Thames, but did not live to witness the trial, which was a total failure; while a boat subsequently built by Fitch, accomplished *four miles per hour*—a great achievement at that time.

"In 1791, John Stevens, of Hoboken, commenced his experiments on steam navigation, and invented the first tubular boiler. He used Watts' engine, and after a long time succeeded in getting six miles per hour out of one of his boats."

Soon after, Livingston, Roosevelt and others, entered the field, with various success. In 1807, Fulton made his celebrated attempt on the Hudson, the success of which experiment has led to improvements which could scarcely have been dreamed of in his day!

#### Trenton Iron Works.

The Iron Works of Mr. PETER COOPER, at South Trenton, N. J., furnish constant employment to between 400 and 500 men, who, with their families, make a population of over 1000 souls. Mr. C. has petitioned the Legislature of New Jersey for an act of incorporation, to enable him to associate with him other individuals, a step rendered indispensably necessary by the increasing cares and responsibilities attendant on the enterprise. Mr. C.'s memorial contains some statistics respecting his works, a few of which we subjoin:

In one year 30 buildings have been erected in the immediate vicinity of the works, and 20 more are demanded by so large an addition to the inhabitants. Property has risen from 10 to 60 per cent., and lots which could scarcely be sold, now find ready purchasers. The agricultural productions for miles around are in steady demand, and every thing indicates increasing prosperity. The works turn out 40 tons of rails per day, and will be increased to 50: to be laid in New Jersey, New York, New England and Michigan. The amount of coal required to produce 50 tons of rails is 87½ tons and 62½ tons of pig iron, making 150 tons of raw material daily

consumed and converted into useful forms. The transportation of their articles, etc., 280 tons per day, pays a large revenue to the canal and railroad companies, and thus to the State, and business has nearly doubled since the establishment of the works. The product of the works for the next 12 months is sold. The payments are made in cash, and amount to \$5000 weekly, and the immense expense of erecting the works has been promptly met.

#### Telegraph Writing.

A prisoner—to whom we alluded a week or two ago, and who is now confined in the Penitentiary in Trenton, recently invented a machine for instantly taking the yeas and nays in the Legislature. He has been engaged for some time in constructing a machine for telegraph printing, which he accomplishes with more facility than can be achieved by the use of Morse's writing apparatus. The editor of the Trenton State Gazette, who has seen the machine, says of it:

"By simply striking at one end of the Telegraph a set of keys, each of which answers to a letter, or mark of punctuation, a communication will be printed at the other end of the wire. The keys may be touched as rapidly as the operator chooses. It does not require a certain time to make the letters, as in Morse's or House's invention. Touching the key does not make the letter; it only sets in motion an instrument which goes on itself very rapidly, makes the letter and then stops. All that the operator has to do, is to sit down at his key-board, with his communication before him, and touch the keys as fast as his fingers can do it."

The printing of the letters is said to be perfect.

#### Stonington Railroad.

Very favorable reports are given of the Stonington railroad, its receipts for six months ending Feb. 1, having been \$90,000 and its debt is reduced to \$580,000. It has been stated that too large an expenditure will be required to construct the line thro' to Olneyville, and this corporation desire to run a straight line on the west side of Providence, to intersect the Providence and Worcester railroads at the Cove. Great expectations are formed by Stonington railroad stockholders of increased business and receipts from this union of two roads from Massachusetts, the latter diverting travel from the Norwich line.

The receipts on the Norwich and Worcester railroad for February, 1847, were.....\$14,604  
February, 1846..... 14,286

Increase..... \$386

In regard to the late decline in this stock, says a late New York paper, one of the directors states in this city, that there is nothing in the condition or prospects of the corporation which warrants any decline in price. The business of the road is increasing over that of last year, which yielded \$90,000 net, after paying expenses, repairs, interest, etc.: or not far from 6 per cent. on the capital of 16,000 shares, at the par value of \$100 each.

The loss of the Atlantic, after deducting the earnings of the boat and the insurance, was \$70,000, and this precluded the possibility of a dividend in January. It is not supposed, however, that a similar loss is to be sustained every year.

The director referred to is very confident in the opinion that the Nashua and Worcester road now in progress of building, will yield a large accession of business to the Norwich road, and that the extension to New London will add largely to the value of the property. The real cause of the fall in the

stock is attributed mainly to the combined movements of certain stock operators who have sold extensively on time.

#### Mining on Lake Superior.

Congress has at length passed an act authorizing the sale of the mineral lands on Lake Superior, of which all the material provisions have been made public. If we rightly remember, remarks the Tribune, "all the lands about Lake Superior which are supposed to contain mineral wealth, are to be put up for sale at a minimum price of five dollars per acre, with the privilege to the purchaser of taking as much as he chooses, but not less than forty acres, which is the smallest legal subdivision. That portion of the mineral region now rightfully in possession of occupants, by virtue of leases or permits from the War Department, is offered to the holders at a minimum price of two dollars and a half per acre, provided the claimants take the whole tract covered by their permits respectively, many of them three miles and the rest one mile square. Squatters not claiming pre-emption, may take as low as forty acres; but if they claim pre-emption, they must take not less than a compact mile square—which seems to put them on a better footing than the holders of the three mile leases. We presume, however, that the latter, having made valuable improvements, will be entitled to waive their leases and claim as squatters, taking only a mile square. Otherwise it would be hard if those who were first among the explorers, and who have done most and expended most to render the mining region penetrable and habitable, should be subjected to harder conditions than the mere squatters of yesterday."

#### Corn for England.

The vast quantities of corn meal which have been ground by the Jersey millers for shipment to England, are pressing forward to New York to an extent beyond the means of transportation. The Newark Advertiser says—"We understand that four acres of Indian meal are lying at Elizabethport, Somerville, Trenton, and other places on the line of the railroads; the storehouses are full to overflowing. Freight trains are running on the railroads night and day, and are unable to keep up with the demand for transportation. About 300 teams loaded with Indian meal, averaging 40 bushels to the load, passed through Bound Brook on the way to New Brunswick."

#### Internal Improvements in Virginia.

We learn from the Richmond Enquirer that the House of Delegates has passed a bill for the extension of the James River and Kanawha canal. The State loans the company a six per cent. stock to the amount of \$1,235,000, to be expended as follows:—\$642,000, if so much shall be required, in completing the works of the said company from Lynchburg to the mouth of North river, and \$594,000, if so much shall be required, in extending and completing the canal from the mouth of North river to the town of Buchanan.

It secures the completion of a work which, while it will be no burthen upon the State, will develop the resources of the west, and will cement the two divisions of Virginia by an indissoluble bond of interest and feeling.

Another important bill was passed on Saturday, increasing the capital stock of the Staunton and Scottsville Macadamized turnpike road, by which the State subscribed to the amount of \$100,000.

The Richmond and Danville railroad bill was reconsidered and again rejected.



## Massachusetts Annual Railroad Reports.

Return of the Boston and Maine Railroad, under the Act of April 16th, 1846.

Capital stock.....	\$2,380,300 00	
Increase of capital since last report.....	500,000 00	
Capital paid in, per last report.....	1,887,328 76	
Capital paid in since last report.....	413,325 26	
Total amount of capital stock paid in.....		\$2,300,654 03
Funded debt, per last report.....	199,000 00	
Funded debt paid since last report.....	8,000 00	
Funded debt, increase of, since last report.....		191,000 00
Total present amount of funded debt.....		
Floating debt, per last report.....	229,804 41	
Floating debt paid since last report.....	112,407 54	
Floating debt, increase of, since last report.....		117,396 87
Total present amount of floating debt.....		
Total present amount of funded and floating debt.....		308,396 87
Average rate of interest per annum on do.....	5 13-14	
COST OF ROAD AND EQUIPMENT.		
For graduation and masonry, per last report.....	569,732 93	
For graduation and masonry, paid during the year.....	41,056 49	
Total amount expended for graduation and masonry.....		610,789 47
For bridges, per last report.....	276,015 15	
For bridges, paid during the past year.....	28,094 01	
Total amount expended for bridges.....		304,109 16
For superstructure, including iron, per last report.....	603,636 19	
For superstructure, including iron, paid during the past year.....	37,500 78	
Total amount expended for superstructure, including iron.....		641,136 97
For stations, buildings and fixtures, as per last report.....	97,503 57	
For stations, buildings and fixtures, paid during the past year.....	67,673 09	
Total amount expended for stations, buildings and fixtures.....		165,176 66
For land, land-damages and fences, per last report.....	484,753 97	
For land, land-damages and fences, paid during the past year.....	16,618 71	
Total amount expended for land, land-damages and fences.....		501,372 68
For locomotives, per last report.....		
For locomotives, paid during the past year.....	21,750 00	
Total amount expended for locomotives.....		
For passenger and baggage cars, per last report.....		
For passenger and baggage cars, paid during the past year.....	146,980 58	194,916 06
Total amount expended for passenger and baggage cars.....		
For merchandize cars, per last report.....		
For merchandize cars, paid during the past year.....	11,883 99	
Total amount expended for merchandize cars.....		
For engineering and other expenses, per last report.....	194,916 06	
For engineering and other expenses, paid during the past year.....	23,630 49	
Total amount expended for engineering and other expenses.....		218,546 55
Total cost of road and equipment.....		2,626,746 06
CHARACTERISTICS OF ROAD.		
Length of road.....	72,927 miles.	
Length of single track.....	73,157 miles.	
Length of double track.....	770 miles.	
Length of branches owned by the company, stating whether they have a single or double track.....	9,065 miles, single track.	
Weight of rail per yard in main road.....	For 6 miles, 45 lbs.; rest varies from 56 to 59 lbs. per yard.	
Weight of rail per yard in branch roads.....	45 to 60 lbs. per yard.	
Maximum grade, with its length in main road, [Length, 1,023 mile.....]	47,520 feet per mile.	
Maximum grade, with its length in branch roads, [Length, 470 mile.....]	29,57 feet per mile.	
Total rise and fall in main road.....	1579 feet.	
Total rise and fall in branch roads.....	133-52 feet.	
Shortest radius of curvature, with length of curve in main road, [Radius 1050 feet].....	Length, 1150 feet.	
Shortest radius of curvature, with length of curve in branch roads, [Radius 573 feet].....	Length, 218 mile.	
Total degrees of curvature in main road.....	1894°.	
Total degrees of curvature in branch roads.....		
Total length of straight line in main road.....	49,761 miles.	
Total length of straight lines in branches.....	6,444 miles.	
Aggregate length of truss bridges.....	2067 feet.	
Whole length of road unfinished on both sides.....		
DOINGS DURING THE YEAR.		
Miles run by passenger trains.....	904,401	
Miles run by freight trains.....	60,733	
Miles run by other trains.....	12,500	
Total miles run.....		277,639

Number of passengers carried in the cars.....	469,426	
Number of passengers carried one mile.....	9,474,241	
Number of tons of merchandize carried in the cars.....	61,599 tons, 1817 lbs.	
Number of tons of merchandize carried one mile.....		
Number of passengers carried one mile, to and from other roads.....	Included above.	
Number of tons carried one mile, to and from other roads.....		
Average rate of speed adopted for passenger trains, including stops.....	25 miles per hour.	
Average rate of speed adopted for freight trains, including stops.....	8 " "	
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....		
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile.....		

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron.....	\$18,068 55	
For repairs of truss bridges, [included in repairs of road].....		
For renewals of iron, including laying down.....		
For wages of switch-men, gate-keepers and flag-men.....	1,908 00	
For removing ice and snow.....	100 00	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....		
Total for maintenance of way.....		\$20,076 55

## MOTIVE POWERS.

For repairs of locomotives.....		
For new locomotives to cover depreciation.....		
For repairs of passenger cars.....		
For new passenger cars to cover depreciation.....		
For repairs of merchandize cars.....		
For new merchandize cars to cover depreciation.....		
For repairs of gravel and other cars.....		
Total for maintenance of motive power.....		25,096 00

## MISCELLANEOUS.

For fuel and oil, [wood and water, \$36,780 65; oil, \$5,335 77].....	42,116 42	
For salaries, wages and incidental expenses, chargeable to passenger department.....	45,936 38	
For salaries, wages and incidental expenses, chargeable to freight department.....	376 58	
For gratuities and damages.....	5,659 91	
For taxes and insurance, [taxes, \$5,414 91; insurance, \$245].....		
For ferries.....		
For repairs of station building, aqueducts, fixtures, furniture.....	1,431 41	
For interest.....	14,214 41	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, [Portland, Saco & Portsmouth].....	17,098 08	
For amount paid other companies as rent for use of their roads, specifying each company.....		
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	7,079 09	134,562 28

179,734 83

## INCOME DURING THE YEAR.

For Passengers:		
1. On the main road exclusively, including branch owned by company.....	223,191 85	
2. To and from other roads, specifying what:		
For Freight:		
1. On main road and branches owned by company.....	119,538 78	
2. To and from other connecting roads:		
U.S. mails, \$5,672 61. Rents, \$733 32.....	6,405 93	
Total income.....		349,136 56
Net earnings after deducting expenses.....		169,401 73
DIVIDENDS.		
Surplus not divided.....	[in 1845 \$21,042 98	
Surplus last year.....	[in 1846 16,612 73	
Total surplus.....	37,655 71	
[Charged to depreciation of cars and engines].....	20,000 00	
[Present surplus].....	17,655 71	
ESTIMATED DEPRECIATION BEYOND RENEWALS, viz:		
Road and bridges.....		
Buildings.....		
Engines and cars.....		

Thos. West, John Flint, A. Peirce, Samuel A. Walker, Henry B. Stone  
William F. Weld—Directors Boston and Maine Railroad.

SUFFOLK, ss. *Boston, January 29, 1847.*  
Then personally appeared Thos. West, John Flint, A. Peirce, Samuel A. Walker, Henry B. Stone and Wm. F. Weld, and made oath that the foregoing report was true, according to the best of their knowledge and belief.

Before me,  
EDW. PICKERING,  
Justice of the Peace.

The undersigned have examined the foregoing report of the directors of the Boston and Maine railroad corporation, and approve the same,

WILLIAM STEVENS,  
Comm'r for Massachusetts.  
GREENLEAF CLARKE,  
Comm'r of New Hampshire.

*Boston, January 29th, 1847.*

#### Direct Road from Boston to New York.

Two projects for railroad routes, are at this time before the Legislature of Massachusetts—having for their object, the establishment of a road from Boston to New York city. One of these—says the New York Tribune—"begins at South Boston or the South Cove, passing through Mount Pleasant in Roxbury, Dedham and Medway to Blackstone, and thence through Rhode Island and Connecticut, by way of Middletown to New Haven, and thence by way of the New Haven railroad, which is already begun, and the Harlem railroad, which is already in operation to the city of New York.

The other route begins at Charles street, near the Toll House, passes through Brookline, the south part of Newton, and Medway to Woonsocket and thence by railroads to be built through the States of Rhode Island and Connecticut, by way of Middletown to New Haven, and there to unite with the New Haven railroad already begun, as above stated. The two projects are substantially the same except as regards that part of the line which lies through a part of Massachusetts, the distance by each route being from 35 to 36 miles, and the length of a new railroad to be built for this special object in the States of Rhode Island and Connecticut, being something over 100 miles.

The Directors of the Boston and Worcester railroad have presented a long and able remonstrance against the grant of a charter for either of these routes. The grounds of the remonstrance are, that a new route to New York is not wanted—that the public travel is already as well accommodated by several routes, as on any line of communication in the United States and at cheaper rates of fare—that the whole travel, at present rates of fare, would not support a new route, and much less a part of it at reduced fares to be produced by increased competition—and that to grant a charter, the design of which is to produce a farther subdivision of this business, all of which now passes over one or more of four railroads, each established at a cost of more than \$2,000,000, under grants from the same Legislature, without any well-founded pretext of public utility, would be to interfere with interests which the Legislature is bound to protect. The remonstrance suggests also, that the works proposed from Boston to the Rhode Island border, are of too costly a character to be maintained by the amount of business on the route, and that the local accommodation can be afforded in a cheaper way, by branches leading to the neighboring railroads already established, terminating in Boston.

The decision of the Legislature will be looked for with deep interest. We agree with the Tribune in the opinion that the objections against the scheme

for a direct route between Boston and New York are no more plausible than were those formerly urged against all railroads. The companies already chartered must not look for exemption from the competition that attends all other business.

#### A Good Move.

The fare on the Philadelphia, Wilmington and Baltimore railroad has been reduced. The price of passage in the first class cars is now \$3, and in the second class \$2. The trains leave the depot in this city as heretofore, at 8 A.M., 4 P.M., and at 10 in the evening. This reduction in the price of fare will bring to the railroad a large proportion of the travel, south, this season—and the company will, unquestionably, find this plan very advantageous.

#### The Lena Iron Company.

The Cumberland Civilian states that a charter has been obtained to form a joint stock company, for the purpose of manufacturing nails, bar iron, etc., in that town. These works will be erected on the Lena Furnace grounds, and the furnace will form a part of the company's property. A site like the one proposed—when the contiguity of the railroad, ore, limestone, and the beauty and healthiness of the location are considered—can scarcely be equalled.

#### New Printing Press.

Hoe & Co., New York, have invented and put into successful operation at the office of the Philadelphia Ledger, a power press which achieves the wonderful result of working 12,000 sheets an hour. Instead of arranging a form in the usual way, the types are "made up" in sections of a large cylinder, one revolution of which brings off four legibly printed sheets. The fastest press before known in this country can only work between three and four thousand sheets an hour. This machine employs four feeders and four flyers, and works as rapidly as they can possibly be put on and take off the paper.

#### Smoke Consuming Apparatus.

A Liverpool paper says that a Mr. Williams has succeeded in applying successfully his smoke consuming apparatus to several furnaces and steam engines in that place. The contrivance, it states, has the advantage of rendering less coal necessary—an advantage of no inconsiderable importance. The smoke, after his plan has been applied, does not exceed that emitted from the chimney of a dwelling house. A similar apparatus applied to the gas houses and factories in this city would not only add greatly to the comforts of the residents in their vicinity, but materially, in most instances, increase the value of property.

#### Extraordinary Steam Hammer for Forging Iron.

There has recently been erected in the yard of Messrs. Peter Cato & Co., south end of the Brunswick dock, a huge hammer, worked by steam, on the plan and construction patented a short time ago by Mr. James Nasmyth, of Patricroft, near Manchester—an invention which will prove a valuable addition to the apparatus hitherto employed. The whole machine, and the furnace for bringing the iron to be wrought to a malleable white heat, are fixed under a large shed, open on three sides, and smoothly paved with fire tiles. The frame of this hammering engine (for so it may be called) consists of a massive flatish iron casting, forming a kind of arch, with strong abutments in the same piece, the whole well secured below, the bedding being on piles, as the ground in this

quarter is forced. In the interior, or opening of this arch, there are at its top part, which is partly filled up, perpendicular lateral grooves in the iron, to guide, in its descent and elevation, the heavy hammer, which maintains its vertical position, and is worked by a piston and rod, moving up and down with any required rapidity within a vertical cylinder, fixed on the top of the arch, and supplied with steam from a pipe overhead, connected with the boiler that supplies steam for the general machinery of the yard. The cylinder is 13 inches in diameter, and the extreme length of stroke of the hammer—a long square block of iron, weighing 22 cwt. is, from its top elevation to the anvil, 3 feet. The extreme force of the blow that may be given is equal to about five tons; but this may be instantly reduced to the most gentle tap, or any intermediate force between the two. The face of the hammer is flat, as is that of the anvil, which weighs 6½ cwt. One grand advantage is, that the face of the hammer being still a horizontal plane, whatever the thickness or shape of the iron to be beaten may be—a decided improvement over the ordinary tilt hammer—which, from its being fixed at the extremity of a bar, hits, on its descent, at continually varying angles of its face, the iron to be forged, according to the various thickness of the iron operated upon—the face, in fact, being horizontal at one point. The principal of the steam hammer is that of the piling machine, as the blow derives little or no force from the steam, but is imparted by the rapid descent of the falling mass suddenly let loose by cutting off the steam. There is an ingenious combination of long screws standing perpendicularly, and a valve and other handles, worked by one man, standing on a small elevated railed platform on one side the framework; and it is surprising with what rapidity and precision the length (downwards,) as well as the power of the blow, can be regulated by an adept, so as to strike the hot iron, whatever its thickness, with the required force, and nothing more. A walnut may be cracked without bruising the kernel. Not only is the hammer a powerful means of fashioning iron knees, knee moulds, anchors, moulds, etc., and other heavy work; but it is applicable to the forging into moulds all kinds of scrap iron, from rivet-holes or clippings, old nails, broken bolts, etc. We witnessed this redeeming process with surprise and gratification. The scrap iron is made up as best may be into squares or piles. One of these is put into the furnace, and in a very short time, attaining a white heat, is welded or united together in one glowing mass. A long bar of iron is then introduced into the furnace; and the end of it being put upon the top of the mass, becomes almost instantly combined or united with it. The mass is then drawn out by the bar, and conveyed rapidly on an iron wagon, commonly called a trawley, from the furnace mouth to the anvil—the top of the wagon being precisely of the same height as both. A single man holds the bar, and by it turns the iron as required, while the ponderous hammer is let down upon it, in blows that shake



the adjacent ground for some distance around, and deals with the glowing iron as if it were as soft as putty, crushing out all the bad, and leaving the good. Comparatively few blows are required to form it into a square bloom, ready as new iron to be beaten out or attenuated at minor forges into any required form or article. The scrap iron, which is worth only about £5 per ton, is by the operation rendered of the value of £10 to £12. The chimney of the furnace is of curious construction. It is cased round with common brick to the top, supported below on four cast iron pillars, and secured with tension rods outwardly secured at the four angles. There are also openings in the casement. By this means the fire bricks of the chimney, which frequently require renewal from being burnt away, may be taken out at any part, and replaced by new ones.—*Liverpool Standard.*

## ITEMS.

**New Musical Instrument.**—A correspondent at Rome, Mich., writing to the editor of the "Eureka," says:—"I have a petition pending for a patent upon a new parlor instrument, which I call an *Organ Piano*—as it possesses the qualities of both the pipe organ and piano forte—so nearly that a good performer can imitate either instrument so perfectly as to deceive an experienced ear.—It is made in the form of square horizontal piano forte, though the form may be varied to taste. It is judged to possess at least three times the power of a piano forte and the swell is comparatively PERFECT; from the softest tone of the Æolian Harp to the body of a six stop organ, and is effected with pedals and the fingers like the piano forte. It is well adapted to the slowest church, or the quickest waltz music, or any movement whatever. In compass 6 to 7 octaves. I fully believe it to be more durable than any keyed instrument of which I have any knowledge, from constant trial for more than four years. I have arrived at certain principles or "ways of doing it," which have been faithfully tested ever since, and not a tone has failed. Since then I have been striving to perfect my invention. While it possesses all of the above named properties and many others desirable, it is not like Coleman's "Attachment," two instruments, but it is but one separate and independent instrument—in and of itself, and is tuned once for ever, judging according to past experience, etc.

Respectfully yours, R. N.

"P. S. The expense of making my instruments is about the same as of piano fortes of same compass."

**Railroad to Albany.**—The Hudson river railroad company have made the required return to the comptroller of the State, to secure their charter. The company have also petitioned for an amendment to their charter, that will allow them to pay interest on instalments, as in the case of the Erie road—a request that should be granted at once. The company also ask that the clause relating to the appointment of appraisers shall be made plainer.

In the act of incorporation, a director in this company is prohibited from being a di-

rector in any other railroad company in this State. The petitioners doubt the expediency of this provision, and ask for its repeal.

The company are also required to spend a large sum in a given time, and as it cannot be done profitably, ask an extension of the time. The charter was obtained amid much competition, and needs to be amended. It is but right that its construction should be made as easy and cheap as possible.—*N. Y. Tribune.*

**Trouble.**—There has been a disturbance on the Worcester and Providence railroad, a large number of laborers having struck for higher wages, and passed along the line compelling the other laborers to quit work and join them. Mr. Campbell, one of the contractors was knocked down. Preparations were making to oppose and disperse the mob, and arrest the rioters, when they departed in different directions. It is said that the men were encouraged to do violence by others who were not employed on the road, but we cannot learn what was the grievance complained of.

**Manufacture of Paper in the United States.**—From statistical documents presented before Congress, it appears that the capital employed in the manufacture of paper in the United States, is \$10,000,000. The number of mills, 700; the annual produce, \$17,000,000; and the number of operatives employed, 100,000.

**Damages for Injuries.**—Mr. Walter Urquhart and wife, recently instituted in one of the courts at New Haven a suit against the Connecticut River Steamboat Company, for injuries sustained by the latter on board one of the company's boats, in 1845. Mrs. U. had her arm broken and received other injuries, whilst being landed at night in a small boat. The evidence showed negligence on the part of the steamboat officers, and the jury gave a verdict for the plaintiffs for \$1575.

**Internal Improvement Bills.**—The Richmond papers contain exulting articles in reference to the passage, by the Virginia House of Delegates, of two important internal improvement bills.

One is the bill appropriating \$1,230,000, in semi-annual instalments, to the extension of the James River and Kanawha canal.—This sum it is estimated will carry the work to Buchanan.

The other is the bill increasing the capital stock of the Staunton and Scottsville turnpike company, to enable it to Macadamize its road between these two points. Scottsville is on the James river canal.—*Sav. Republican.*

☞ The increase of the receipts on the Reading railroad for December, January and February, over the same months of last year, has been about \$170,000. The rumor of a coalition between this company and the Schuylkill Navigation is without foundation.

☞ The bill to incorporate the Easton and Somerville road, passed in the New Jersey Senate, has had two readings in the House. The capital of the company is \$1,200,000, with the privilege to increase it to \$2,000,000. The route prescribed is from Somerville north

to the Muscouctcong valley, passing within two miles of Clinton, Hunterdon county; thence to the valley of the Delaware river, and then up to within two miles of the Delaware bridge, opposite Easton. It provides also that it shall not interfere with the Camden and Amboy road, and shall pay the half of one per cent. tax on the cost of the road to the State.

☞ The proprietors of the Lackawanna iron works have contracted to furnish the N. York and Erie railroad company with railroad iron to the amount of \$400,000.

**Railroads in Massachusetts.**—There are so many applications for railroad charters before the Legislature of Massachusetts, that three committees have been appointed to attend to them. The number of routes and cross routes is said to be about fifty.

**The Longest Train.**—A correspondent of the Rochester Democrat says: "On our way eastward we passed the longest train of cars on the Albany and Boston road that has ever crossed the track. It was composed of 122 cars, of an average length of 32 feet each, making a train of 3700 feet, or nearly three-quarters of a mile long, and all drawn by one powerful engine."

**Old Colony Road.**—A comparison of receipts upon the Old Colony railroad from December 1, to February 21, gives a total of \$26,891 this year, to \$19,296 in 1845-6.—On the Fitchburg and Fresh Pond branch railroads, the gain in February over that month of last year was over one-third.

**Earnings of the Macon and Western Railroad for February, 1847.**—Through travel, \$1,138 21; local do., \$3,225 05; mail do., \$383 60; freight, \$5,719 29. Total, \$10,493 15.

**Large Castings.**—We learn from the Philadelphia Ledger, that Messrs. Merrick & Towne have just completed a powerful hydraulic press, for the manufacture of leaden pipe, and are now engaged in shipping the requisite castings on board the brig Mail, for this city, being intended for the lead factory of the Messrs. Stern. One of the castings, a cylinder for the press, weighed four tons and a half.

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

1y48

77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 464

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by **A. WRIGHT & NEPHEW,** Vine St. Wharf, Philadelphia.

121f

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York.

**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

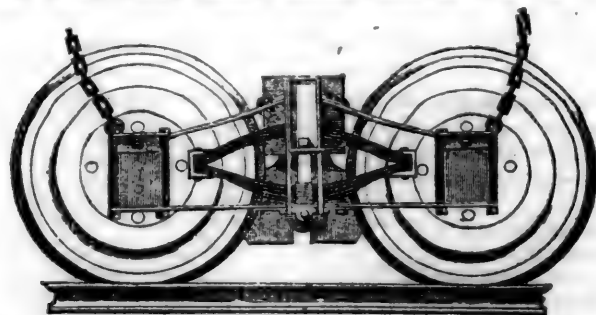
**SAM'L. KIMBER, & CO.,**  
59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.**—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.			STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.			
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.			
11	4½	13 5	10	21 -	50	15-16		20	
13	3½	8 3	8½	16 -	27	11-16		13½	
14	3½	6 11	7½	12 8	17	9-16		10½	
15	2½	5 2	6½	9 4	13½	1-2		7½	
16	2½	4 3	6	8 8	10½	7-16		7	

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.*

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co. have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROX, Supt. of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLLS,**

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] **JOHN LEACH,**

Jamaica November 12, 1846.

1y19 Supt. Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and theft proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GORE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.) WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 190 Meeting street  
Charleston, S. C. 16 11

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

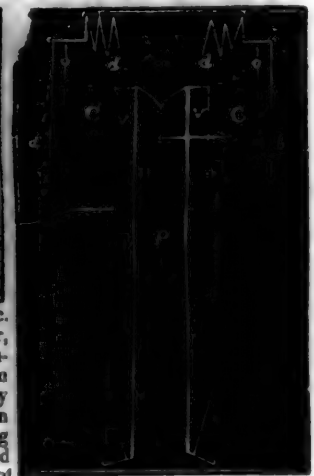
**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work. Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York. 11



**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

.. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

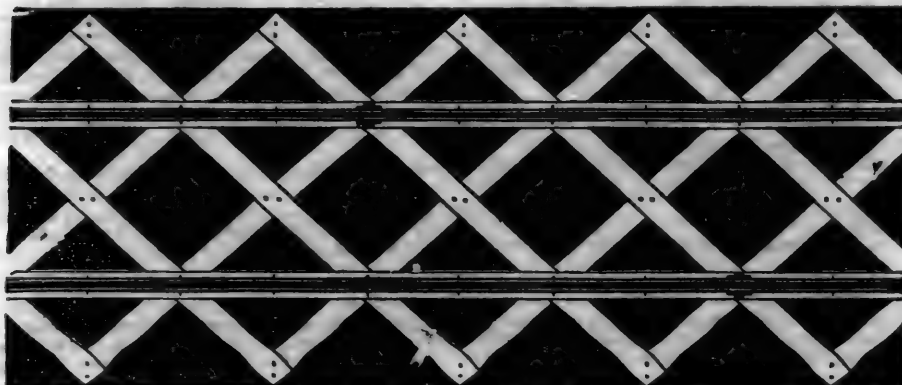


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,350 lbs. at 4½ cts =		101 25
Workmanship free of patent charge.		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 334

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

**D. K. MINOR.**

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut,  
1y10 near Third, Philadelphia.

## LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

**THIS** Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**  
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

### ENGINEERS and MACHINISTS.

**THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)

**J. F. WINSLOW,** Albany Iron and Nail Works Troy, N. Y. (See Adv.)

**TROY IRON AND NAIL FACTORY,** H. Burden, Agent. (See Adv.)

**ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J. (See Adv.)

**S. VAIL,** Speedwell Iron Works, near Morristown, N. J. (See Adv.)

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**FRENCH & BAIRD,** Philadelphia. (See Adv.)

**NEWCASTLE MANUFACTURING COMPANY,** Newcastle, Del. (See Adv.)

**ROSS WINANS,** Baltimore, Md.

**CYRUS ALGER & Co.,** South Boston Iron Co.

**SETH ADAMS,** Engineer, South Boston.

**STILLMAN, ALLEN & Co.,** N. Y.

**JAS. P. ALLAIRE,** N. Y.

**PHENIX FOUNDRY,** N. Y.

**ANDREW MENEELY,** West Troy.

**JOHN F. STARR,** Philadelphia, Pa.

**MERRICK & TOWNE,** do.

**HINCKLEY & DRURY,** Boston.

**C. C. ALGER,** Stockbridge Iron Works Stockbridge, Mass.

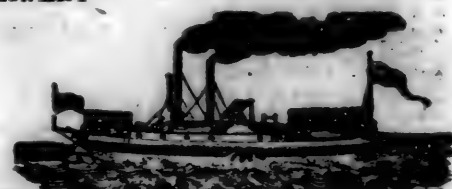


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 106 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTER SERIES, VOL. III., No. 14)

SATURDAY, APRIL 3, 1847.

[WHOLE No. 563, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A.M.

Between Phila. and Pottsville, 93 \$3.50 and \$3.00  
" " Reading, 58 2.25 and 1.90  
" Pottsville " 34 1.40 and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 80

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and m. 9. from Frankfort, other hours as above. 35ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

SPRING ARRANGEMENT, March 1, 1847.

PORTLAND TRAINS.

Leave Boston at 7½ A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 4½ P.M.  
Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5-50 P.M.  
Leave Haverhill at 6½ A.M. and 4 P.M.

READING TRAINS.

Leave Boston at 9 A.M. and 8 P.M.  
Leave Reading at 6½ A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 9 A.M., 2½, 5-50 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 5½ P.M.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1531 CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.  
" Middletown at 6½ A.M. and 5½ P.M.

Fare reduced to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.  
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 d

## NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing

Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 43

J. W. STOWELL, Sup't

**TROY RAILROADS.—IMPORTANT NOTICE.**—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a.m. and 4½ p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

**TROY AND SCHENECTADY RAILROAD.** This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

**TROY AND SARATOGA RAILROAD.**  
THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 32

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12½ at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13y1

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

**NEW RAILROAD ROUTE FROM BUFFALO TO CINCINNATI.**

Passengers destined for

Columbus and Cincinnati, U. Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance..... 30 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy iron,] to Mansfield, distance..... 56 " Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 " Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

**TIME.**

From Buffalo to Sandusky..... 24 hours.  
Leave Sandusky 5 a.m. to Columbus.... 14 "  
From Columbus to Cincinnati..... 13 "  
Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

**FARE.**

From Buffalo to Sandusky, Cabin..... \$6 00  
" " " Steerage..... 3 00  
" Sandusky to Columbus..... 4 50  
" " through to Cincinnati..... 8 00

Passengers should not omit to pay their fare through from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, Sup't, etc.  
M. & S. C. R. R. Co.

Sandusky City, Ohio.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 30, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 50, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balt-**

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at..... 9 a.m. and 3½ p.m.  
Arrives at..... 9 a.m. and 6½ p.m.  
Leaves York at..... 5 a.m. and 3 p.m.  
Arrives at..... 12½ p.m. and 8 p.m.  
Leaves York for Columbia at..... 1½ p.m. and 8 a.m.  
Leaves Columbia for York at..... 8 a.m. and 2 p.m.

**FARE.**

Fare to York..... \$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg, 3 In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at..... 5½ p.m.  
Returning, leaves Owning's Mills at..... 7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVANNAH TO MACON. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—  
On weight goods generally..... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil)..... \$1 50 per barrel.  
On brls. dry (except lime).... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
On hhds. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.  
On molasses and oil..... \$6 00 per hhd.  
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**RAILROAD IRON.—THE "MONTOUR**

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

ly48 77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS**

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46t

**PIG AND BLOOM IRON.—THE SUBSCRIBERS**

are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**THE SUBSCRIBER IS PREPARED TO**

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Ship.  
ly10 Central wharf, New York.

**BOUND VOLUMES.**

Volumes of this Journal, for the Years 1836 to 1840, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.



**THOMAS & EDMUND GEORGE,**  
N. E. cor. 12th and Market sts., Philad., Pa.

**Baltimore and Ohio Railroad.****Twentieth Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad Company.**

In submitting to the stockholders the twentieth annual report, the President and Directors of the Baltimore and Ohio railroad company have it in their power to state that the President, having returned to the United States, has resumed his duties at the head of the company. Returning to his post only at the close of the year, however, it has been thought best that the general operations of the company should be stated by the president pro tempore, by whom they were conducted: and for that purpose the board refer to his letter addressed to the president, and dated the 7th of the present month.

The affairs of the company are accurately exhibited in the following and annexed statements.

The statement A presents the state of the company's affairs on the 30th ultimo; and the revenue and expenses of the Main Stem for the year ending on the same day, are shown by the statement B.

The tabular statement marked C, prepared by the engineer of machinery and repairs, presents in detail the operations of the main stem, and the actual expenses of working that part of the road during the year: together with the amount of receipts from all sources during the same period. And, in order that the series of these statements should be made complete, a similar statement in regard to the main stem during the year ending the 30th Sept., 1845, and omitted in the report of that year is here supplied, marked D.

These statements show a steady increase in the transportation, both of passengers and burthen. It will be observed that the increase in the number, and in the revenue from the conveyance of passengers in the year just closed, compared with the preceding, has been more than 14 per cent. During the same period the augmentation in the amount of tonnage transported, has been more than 30, and the increase in the revenue from the same source, as compared with the receipts of the preceding year, has exceeded 26 per cent. It will also appear from the comparative statements accompanying this report, that the cost of working the road has not been greater, in proportion to the work done, than during the preceding year.

It will be seen that the net revenue, including the receipts of the coal trade, after deducting the expenses of working and keeping the road in repair, amount to the sum of \$440,475 34—being \$65,713 60 greater than the previous year, and more than 6 per cent. upon the capital of the company. Of this sum, however, besides \$65,749 64 (being principal, interest and premium in sterling bills) on account of the debt due the Messrs. Baring, there have been applied during the year to the reconstruction of the road and to the construction of burthen cars adapted to the general trade: to improvements at the depots and to right of way: to the purchase of locomotive engines and the construction of water stations: to the purchase of addi-

tion power and machinery for the accommodation of an increasing coal trade, and on account of a subscription on behalf of the company to the capital stock of the Pittsburg and Connellsville railroad, the further sum of \$284,184 76, making together \$349,934 40—and leaving of the net revenue of the year at the disposal of the board the sum of \$90,540 94—or about 1½ per cent.

The motives which justified the board in determining upon the reconstruction of the road, under the circumstances, are stated in the letter of the president pro tempore. The board could not doubt their sufficiency, and they were believed to be too urgent to admit of delay. The board at the same time determined to raise the means for the reconstruction of the entire length of the road between Harper's Ferry and Baltimore by the sale of the company's six per cent. bonds, payable in 20 years; and believing that a sufficient sum for this purpose might in this way be raised in season to meet their engagements, they directed 30 miles of the road to be immediately put under contract. The contracts were accordingly made, and the work embraced in them will cost not less than \$360,800—and may be expected to be completed before the first day of March next.

The sale of the company's bonds, however, was not effected according to the expectation of the board; and, to meet the payments under the contract, it became necessary to sell the bonds at a sacrifice varying from 8 to 10 per cent., or temporarily to apply the revenue of the year, to be hereafter reimbursed from future loans. The board thought they best consulted the interests of the stockholders, in adopting the latter alternative.

It would seem also that the time had now arrived when the board should make some definite arrangement for the reimbursement to the stockholders of the moneys taken from the annual revenue and applied to the purchase of the power and machinery on account of the transportation of coal.

The coal trade, in its origin, was, in some degree, experimental and intended, for the most part, to be confined to special contracts, comprehending large amounts, to be conducted with particular regularity and at times different from the general miscellaneous business. It was intended, therefore, to embrace this particular branch of transportation in a distinct account, and by charging it only with the capital actually employed and the expense of conducting it, apart from other transportation—to be able to trace with greater certainty the results of the trade, and the extent to which it might hereafter be advantageously carried on. These objects were stated in the answers of the board to the inquiries of the legislature in 1844; and in the annual report of the same year, the board acquainted the stockholders that for the purpose of successfully conducting this trade they had borrowed the capital from the revenue, and of their intention to reimburse it from the profits of the trade. The capacity to transport coal, however, at cheap rates and at a good profit, it appears has been practically ascertained; the trade itself, in conse-

quence of the operations at the mines and the nature of the demand, has already extended beyond the limits of special, defined contracts, and there is neither any necessity nor advantage in continuing the separation of this from the other branches of transportation. The determination recently made of reconstructing the entire road between Harper's Ferry and Baltimore from the general funds of the company superadds another reason why the expenditures on account of the transportation of coal hereafter should be placed upon the same footing as all others incurred on account of the miscellaneous trade of the road.

Under these circumstances, the board deem it only reasonable now to return to the stockholders what has been taken from the revenue during the past year, for the purposes of the coal trade; and for its conduct in future, to rely upon the same provision as is usually made for transportation of any other description.

Upon this principle, adding the sums applied from the revenue for the reconstruction of the road and for the power and machinery for the coal trade (after deducting the sum of \$43,312 14, with which that trade has been credited,) amounting together to \$146,816 05, to the residue of the surplus as above stated, there would remain a net surplus of revenue over and above all other expenditures, of \$237,356 90.

As a distribution of this amount among the stockholders could only be effected by a sale of the company's bonds at the depreciation already stated, or by the delivery of the bonds at their par value to the stockholders, it became necessary to decide, not only the alternative thus presented, but the expediency of dividing only the balance of revenue actually in hand, amounting, as already shown, to about 1½ per cent.

In considering these questions, the board has reason to believe that, with a knowledge of the general increase in the trade and revenues of the company, if not on other grounds, the stockholders generally, including the state and city, had been led to expect a dividend of at least three per cent., and it was officially represented that the authorities of the city, relying upon that expectation, had omitted to make any other than a correspondent provision for the accruing interest upon the city debt.

Yielding the fullest force to these considerations, it was at the same time, deemed inexpedient to reimburse the amount applied from the revenue to the objects stated, by a sale of the company's bonds at so great a depreciation, and at rates which might have a tendency to impair their value in future, at least until an opportunity could be afforded of adopting reasonable means calculated to establish their just and full value.

Up to this time the amount of bonds which the company proposed to issue, and the specific pledge by which it was designed to secure the payment of both principal and interest, had not been limited or defined, and this had a tendency to depreciate their price. The bonds, when issued, moreover, and in the



hands of citizens of Baltimore, are actually subjected to a tax by the state and city, amounting together to nearly one per cent.; an impression also generally prevails, that they would be liable to the same tax in the hands of citizens of other states, and it is certain it would be competent for the authorities, either of the state or city, not only to create this liability, but to increase the tax according to the exigencies of either. These causes combined, have hitherto effectually prevented the sale of the bonds, unless at a sacrifice which the board did not feel authorized to incur without every effort in its power to avoid.

The first difficulty the board have already removed, by executing and directing to be recorded a mortgage of the property, effects and revenue of the company, second only to the mortgage already existing for the security of the million loan, on account of the Washington road, and by limiting the amount included in the mortgage to \$1,000,000, and the application of that amount to the reconstruction of the road, and the reimbursement of \$58,192 64 applied during the past year to the increase of power and machinery for the coal trade.

That this measure alone will add to their value, and render the bonds more saleable, is not to be doubted; and that their exemption from tax by the state and city, would establish them at par, and perhaps enable them to be sold at a premium, is believed to be equally clear.

The cheapening of the cost of transportation, the diminution in the expenses of working and repairs, and the consequent increase of the net revenue resulting from the reconstruction of the road, would, under any circumstances, be considered as much more than an equivalent to the city or the state for the loss of any revenue they could hope to derive from a tax upon the company's bonds.

It is, however, only proper to remark, that not only the contracts already made in regard to the 30 miles of the road, but the early reconstruction of the entire line between Baltimore and Harper's Ferry, is not a matter of discretion, but of necessity, to be accomplished in no other way, and by no other means, than the use of the annual revenue, or by the sale of the company's bonds at the best prices that may be obtained. In this view, that an exemption of the bonds, not exceeding \$1,000,000, from taxation by the State and city, would be preferable to the sacrifice of a depreciated sale, or the loss of an annual dividend until the present engagements can be complied with, and the reconstruction of the road completed, it is supposed will not be questioned by any one.

After fully weighing the foregoing considerations, the board have felt it their duty not to incur the responsibility of producing either of the losses, or any of the inconveniences already pointed out.

They have determined, therefore, to reimburse so much of the revenue of the year as has been applied to the coal trade and to the reconstruction of the road, by the issue of the six per cent. bonds secured by the mortgage already recorded, and in preference to a sacri-

fice of the bonds in the market at the present prices, to pay them to the stockholders, to be used as they may deem proper.

Pursuant to these views the Board having applied \$20,000 to the sinking fund on account of the loan for the Washington road according to the pledge contained in the annual report of 1842, have declared a dividend of 3 per cent., or \$3 per share, payable as follows, that is to say: to all stockholders owning on the first day of the present month less than 50 shares of stock, \$3 in money on each share on and after the 20th day of November next; and to all stockholders owning on the said first day of the present month 50 shares and over one dollar on each share in money, and two dollars in the bonds of the company, bearing six per cent interest payable quarterly, and reimbursable in 20 years; the money to be paid and the bonds to be delivered on or after the said 20 day of November next.

By this measure all the stockholders will receive back in undoubted securities the full amount borrowed from the revenue and applied to purposes of capital; and to those who may desire to invest their dividends, an advantageous opportunity of doing so is thereby afforded. It is hoped and believed that the partial payment of money will render it unnecessary for any to dispose of the bonds until further measures can be adopted to increase their value; and to the State and city especially, ample opportunity will be afforded, by authorizing a just exemption of the bonds from taxation, not only to raise to their full value those now to be paid on account of the dividend, but to ensure the reception of an annual dividend of the profits of the road in future.

While announcing these measures, however, the Board deem it not less due to the stockholders, than an act of justice to those to be in future associated in the management of the company, to point the attention of the stockholders to the actual and probable state of the company's affairs, during and at the termination of the year commencing with the first of the present month.

The board, therefore, proceed to state that, on account of the contracts for the reconstruction of the 30 miles of road, already explained, there will remain to be paid before the 1st of March next, not less than \$225,000—on account of new locomotive engines constructing under contracts executed in the months of April and May last, and payable during the same period \$70,000; for new burthen cars now under construction, \$20,000, and for improvements at the several depots, \$10,000.

To these must be added the interest upon the bonds now directed to be delivered to the stockholders, and upon such temporary loans as it may be necessary to make in anticipation of the revenue, and also the instalment payable during the year to Messrs. Baring, Brothers & Co., of London, estimated together at \$93,000—and forming an aggregate of existing engagements of not less than \$418,000.

It will be perceived, therefore, that independent of contingent expenses, such as rare-

ly fail to occur in the course of 12 months' operations, the revenue of the current year, if it should equal that of the past, will be absorbed by debts already incurred; and consequently, that without disposing of the company's bonds to meet the contracts for reconstruction, it will not be in the power of the board to make any dividend at the end of the year.

It is also to be observed, that an amount of not less than \$335,000, arising out of those existing engagements, must be paid before the 1st of March next, and not improbably obliging the board to dispose of a considerable amount of their bonds without regard to the state of the market; in which case it would be necessary to add the loss sustained by a depreciated sale, to the other charges upon the revenue of the year, as already explained.

It is proper, also, in this place to state, that during the last session of the Pennsylvania Legislature, a law was obtained authorizing the construction of a railroad from Pittsburg to some point on the Maryland line, where it might be united with the Baltimore and Ohio railroad; and, in the expectation that it might thereby become an important lateral connection of their road with the Ohio river, the board, in the month of May last, authorized a subscription to be made on behalf of this company for 700 shares, costing at the par value, \$35,000, in case such amount should be found necessary to secure the charter of the Pennsylvania company. Seven hundred shares were accordingly subscribed under the authority so given; and the first instalment, amounting to \$1,750, was paid out of the revenue of the Baltimore and Ohio railroad company.

It is now understood that the Pittsburg and Connellsville railroad are desirous of progressing with their road with the least possible delay, and that they are not without expectations of further and greater assistance from this company. Whatever may be the result of these expectations, it is certain that a compliance with the subscription already made, will be insisted upon, and the extent to which this company may be called upon for payment, will be an addition to the obligations, already explained, to be discharged from such resources as may be in its power.

It would seem, therefore, that without a considerable increase in the business of the road, or a like diminution in the expense of working it, and unless the board should be enabled to dispose of the bonds, proposed to be issued at fair prices, it is not only probable, but certain, that there can be no dividend at the end of the current year, but that the net profits, and consequently the dividend, of the year ending September 30th, 1848, will be materially diminished.

#### SECOND.—Of the Washington Road.

The affairs of the Washington road are shown by the statements E. and F.

These statements show an improvement in the revenue during the last half year, as compared with the preceding six months.

The net profits, including the surplus of \$6,888 31 after the dividend in April last, amount to the sum of \$80,576 70, of which

the board have declared a dividend among the stockholders of three dollars upon each share of stock for the last six months, payable on and after the 15th day of the present month, and leaving a surplus of \$11,076 70, to be carried to the account of the current year.

**THIRD.—Of the further prosecution of the Road to the Ohio River.**

Important as a judicious and economical management of the existing work may be, and necessary as it undoubtedly is, by all the means at their command to develop and extend its present resources, the board continue to regard the early prosecution and final completion of the road to the western waters, as their great and ultimate duty.

Considered in reference to the magnitude of the enterprise, or to the effects which may be expected from its judicious location and successful completion, the Baltimore and Ohio railroad is inferior to no work of internal improvement in this or any other country. That a short and cheap route between the States of the middle and southern valleys of the Ohio and Mississippi, and the Atlantic markets may be found by a line from Baltimore to more than one point on the Ohio river, it is not to be doubted; and, it is equally clear, that the route to which a preference is ultimately to be given, must be in a degree, determined by its connections with the western country.

The line which will be most desirable and afford the greatest facilities to the largest portion of the population of the Ohio and Mississippi valleys, and maintain the most successful competition with rival works seeking the same object, ought to be preferred by all; and, in this view, important as the work may be to Baltimore, it is not likely to be estimated less by all the States on the Ohio and Mississippi valleys. By consulting the interests of those States, their co-operation may be reasonably invoked, and time and the developments constantly in progress may be expected at no remote day to triumph over all the obstacles which have hitherto retarded the enterprise.

The recent legislation of Pennsylvania, referred to in another part of this report, if used with proper skill and energy by those in charge of the work it authorizes, may ensure to the company, independent of all other legislation, the opportunity of connecting their work with the western States, if not at the best, certainly at a point possessing great advantages; and if it be not allowed to defeat the prosecution of the Baltimore and Ohio railroad to its legitimate termination at a more southern point on the Ohio, will deserve and ought to receive every reasonable encouragement from this company and from the people of Baltimore. The board, at the same time, without meaning to underrate the importance of the railroad from Pittsburg to the Maryland line, are unwilling to lose sight of the expectation that by means of the legislation of the State of Virginia, they may be enabled to prosecute the main stem of their road to some eligible point on the Ohio river within that State.

It is not probable that the just claims of the people of the northwestern and southwestern counties will be much longer neglected by the enlightened councils of that great Commonwealth; and it is not unreasonable to expect that other interests, heretofore more partial to other improvements, will, at no distant day, be brought to look upon the Baltimore and Ohio railroad as the most practicable means of developing the resources of those parts of the State which have hitherto depended upon other means.

The proceedings of a numerous convention of delegates from the northwestern counties of the State of Virginia, recently held at Weston, Lewis county, would appear to encourage these expectations, and to warrant the hope that so much intelligence and perseverance cannot fail ultimately to succeed.

Nor do the board deem it unreasonable, at a period when the utmost exertions are every where making to unfetter the trade and facilitate the intercourse between different communities, to count upon the cordial co-operation of the western States, and of the most distant parts of the Union, in support of an enterprise affording to all the easiest access to the best markets.

To no portion of the United States are works of internal improvement of greater importance, than to the States south and east of the Ohio river; and, it is not to be supposed that the people of those States will long remain insensible to this truth. Already the introduction of steam upon the western waters, has accelerated the advance of that immense region beyond that of older parts of the Union, and little remains to complete their prosperity than such means of intercommunication with the Atlantic States as, with the application of steam upon their great rivers, will unite the employment of the same power upon land.

It will be the duty of the board, therefore, to appeal to those interests, and by all means in their power, endeavor to render them auxiliary to the prosecution of the great work they have in charge.

By order of the board.

LOUIS McLANE, *President.*

Baltimore, October 12, 1846.

BALTIMORE, October 7th, 1846.

Hon. LOUIS McLANE, *President Baltimore and Ohio Railroad Company:*

DEAR SIR—In compliance with your request, I have the honor to submit a general statement of the operations of the Baltimore and Ohio railroad during the past year.

By reference to the reports of the superintendents of transportation and machinery, it will be seen that there have been transported to and from the several points on the main stem, 193,916 tons of merchandize, and 280,264 passengers, showing the very remarkable increase in the former of 52,509 tons, and in the latter, of 77,806 passengers over the year previous. This increase in the tonnage, it will be observed, has occurred, upon the most part, in the transportation of miscellaneous trade, and is the more gratifying because it gives evidence of the importance at-

tached to this route as an avenue of communication with the west, even in its present unfinished condition; and, connecting as it does, with a most imperfect mode of transportation between Cumberland and the Ohio river.

The increase above alluded to, occurred chiefly between the months of September and May last. The great drought of the summer of 1845, having rendered the Pennsylvania canals very inefficient during the autumn, and the violent effects of the breaking up of the last winter causing them to be almost entirely useless until a late period of the spring.

This large amount of trade thrown thus suddenly upon the road, although extremely gratifying in many respects, produced considerable embarrassment on account of the inadequacy of the motive power and cars for its accommodation. To such an extent, indeed, at one period, did this embarrassment exist, that for a short time it was found absolutely indispensable to refuse to receive merchandize for transportation, the depot being crowded to its full capacity, and the forwarding houses at Cumberland being unable to procure wagons in sufficient numbers for its prompt dispatch.

It will be readily perceived, that in the effort to accommodate such a trade, both the locomotives and cars were pushed to their utmost capacity, and indeed beyond what would, under other circumstances, have been considered consistent with a proper economy in regard to repairs. It not unfrequently happened that the engines, after performing their duty during the day, had necessarily to be repaired after night, in order that they might be ready for use the next morning—a system altogether too expensive, and too imperfect to be allowed, except under such circumstances as then existed. But, under this state of affairs, it became the duty of the board to endeavor to procure, at as early a day as possible, an increase of power and cars; and they accordingly directed the committee of transportation and machinery, by resolutions of the 3d December, 1845, March 11, 1846, April 8, 1846, and June 10, 1846, to procure six locomotives of the largest class, and three of the second class; and also to cause to be constructed in the company's shops, one locomotive of the largest class, and one of the 2d class; 30 iron coal cars, 20 house cars, 42 gondola cars, and 20 stock cars.

The board, under a report and resolution of the committee of transportation and machinery, on the 8th July last, have further authorized, in view of the probable increase of the trade during the year 1847, contracts to be made for five first class engines, and 30 merchandize cars. This last authority has not, up to the present moment, been acted upon, except in regard to the merchandize cars, which are now in course of construction. Whether the increase in the coal trade will be such as will render the five locomotives, above referred to, necessary, remains to be ascertained, and may depend upon the course the company may take in regard to that subject. Only three of the engines above refer-



red to, have been delivered. One of the engines ordered to be built in the company's shops, is in a state of forwardness, and those contracted for, will be delivered in the course of this year. Nearly all the cars ordered have been completed, and are in use upon the road. This large increase of machinery and cars, rendered further accommodation for their protection at the Mount Clare and Cumberland depots, indispensable; and, under the recommendation of the engineer of machinery and repairs, the board authorized the extension and erection of the buildings and other improvements at those points, under resolutions of the 11th March, and 13th May last. These circumstances, it is believed, will sufficiently explain the increase during the year, of expenditure in the repairs of locomotives, the cost of new machinery, and of expenditures upon depots and water stations.

The quantity of coal brought to market over the road during the year, amounts to 18,393 tons, being 2,373 tons more than that of last year. It must be observed, however, that of this quantity, 12,682 tons have been transported since May last, that being about the period when several of the coal companies in Allegheny county commenced their operations. The contract with the N. York and Maryland Iron and Coal company, to which reference has been had in former reports, having been abrogated, and that company having devoted its capital and energies to the manufacture of iron, the quantity of coal received from them during the year has been very inconsiderable.

The augmentation of the trade, and the occurrence of accidents almost daily, which involved serious derangement of the machinery, and in some instances the loss of life to persons engaged upon the trains, necessarily had the effect of calling the attention of the board to the condition of the road, and accordingly on the 8th of October, 1845, a resolution was adopted directing the chief engineer to take into consideration and to report to the board, a system for the gradual extension and improvement of the road from Harper's Ferry towards Baltimore.

Upon this resolution the chief engineer made an elaborate report, in which it was satisfactorily shown that the condition of the road was such as to require its reconstruction. The comparative merits of the plate rail, in point of repairs and renewals of track, repairs and renewals of machinery, and expenses upon the motive power, are fully discussed, and the advantages are shown to be most decidedly in favor of the edge rail.

The following table, extracted from the chief engineer's report, will exhibit, at one view, the cost of construction, and the relative expense of maintaining the two descriptions of track under different amounts of trade: it will appear that if, instead of 92 miles of plate rail, we had an equal number of miles of edge rails, the saving under the probable trade of the present year of 116,522 tons would have amounted to \$18,308, and under the 151,522 tons of the coming year to \$30,173, in the maintenance of way alone. From these sums there should, however, be deducted the

annual interest upon that part of the capital in the present plate rail track, which would be sunk by the substitution of the new track. Of the \$3,500 per mile, the estimated cost of the former, about \$1,500 would be realized by the sale or use of its materials, leaving \$2,000 per mile, on which the interest at six per cent is \$120 per annum per mile, and for 92 miles \$11,040, which, taken from \$18,308, and from \$30,173, leaves \$7,268 as the saving for 1846, and \$19,136 for that of 1847.

DIFFERENCE. In favor of Plate Rail, Against Plate rail.	DESCRIPTION OF TRACK.	Estimated cost of construction per mile.	Interest at 6 per cent. on cost, per mile.	Interest at 6 per cent. on cost, of 92 miles.	Repairs and Renewals, per mile.	Same for 92 miles.	Interest, Repairs and Renewals for 92 miles.	Capital equivalent to the latter, at 6 per cent.	Repairs and Renewals per mile.	Same for 92 miles.	Interest, Repairs and Renewals for 92 miles.	Capital equivalent to the latter, at 6 per cent.	Repairs and Renewals per mile.	Same for 92 miles.	Interest, Repairs and Renewals for 92 miles.	Capital equivalent thereto at 6 per cent.
7,060	Plate Rail.....	3,500	210	19,320	653	60,076	79,386	393,965	1,019	93,748	113,068	1,884,466	1,201	110,492	129,812	1,653,533
491	Edge Rail.....	10,660	634	58,328	288	26,496	84,824	1,413,400	396	36,432	94,760	1,579,332	449	41,308	99,636	1,660,600
39,005																
365																
33,530																
5,459																
90,124																
623																
67,316																
18,308																
305,132																
622																
69,184																
30,176																
502,933																

These results are founded upon estimates of the average wear and tear of the two tracks for a series of years under the respective amounts of trade assumed. But, in fact, while the plate rail track, if continued, would certainly cost the sums set down to it during this year and the next, the edge rail track, if now laid down and ready for use, would, for those two years, cost very much less than the amounts assigned to it. Indeed, considering the perfect consolidated character of the road bed upon which it would be placed, it is be-

lieved that for the first year it could be maintained in repair for 125 dollars per mile, and for the second year for 195 dollars per mile.

In confirmation of this supposition, and in support of the above estimate of the repairs and renewals of an edge rail track like that west of Harper's Ferry, under the several amounts of trade assumed, may be adduced the fact that the  $\Pi$  rail track, of which there are 19 miles east of Harper's Ferry, has cost an average of about 210 dollars per annum per mile to maintain it since it was laid down, seven years ago, and the  $\Omega$  rail track west of Harper's Ferry has cost, for the 3 years of its duration, about 190 dollars per mile. The maintenance of the  $\Pi$  rail track of the Washington branch has, in nine years experience, cost about 275 dollars per annum. The saving of the edge, compared with the plate rail, would then, for the first year, be 32,200 dollars, instead of 7,268 dollars, and for the second year, 44,344 dollars, instead of 19,136 dollars, as just stated.

From the preceding comparison, founded, it is firmly believed, upon the safest and most satisfactory data, furnished by the ample experience of our own road, and substantiated by that of other works, we are authorized to draw the conclusion that, if at this date, we had a new edge rail track instead of the old plate rail track east of Harper's Ferry, we should have saved not less than 32,000 dollars, during the past year, in the cost of its maintenance, under the estimated trade of this year.\*

Again, the following table, extracted from the same report, will show the probable reductions in the cost of working the road between Baltimore and Harper's Ferry, due to the substitution of an edge rail for the present plate rail between those points.

From the summary of the savings under the four heads of expenditure, considered, it is seen that, with an edge rail, the company would have saved in the operation of the last seven years, the sum of 15,470 dollars; and that with such a rail, they would have saved in the working of the road during the past year, 49,071 dollars; and, in that of the year following, 63,233 dollars, after allowing six per cent. interest on the cost of the new track. And if interest at the rate of 120 dollars per mile be allowed upon the sunken capital of the old track, if it were now abandoned, the saving would then have been for the present year, 38,031 and for the next, 57,193 dollars, clear of all drawbacks whatever.

And if we look no further in estimating the repairs of the new track than two years ahead, the saving would be 62,963 dollars for the first, and 82,401 dollars for the second.

This, then, is the result of the balance of "advantages and disadvantages," so far as they are susceptible of being estimated in money, upon principles and data which are demonstrably true.

\* It is proper to observe, that the report of the chief engineer was made in November last, and assumed that the trade of 1846 would amount to 116,522 tons, averaged over the entire length of the road between Baltimore and Harper's Ferry. The result of the year's business shows his estimate to be not far from the truth.

TABLE OF THE COST  
Of Constructing and Maintaining the two kinds of Track under the various amounts of Trade.

DESCRIPTION OF TRACK.	Seven years preceding Oct. 1, 1945.		Year ending October 1, 1946.		Year ending October 1, 1947.	
	Trade of 63,652 tons.		Trade of 157,731 tons.		Trade of 203,109 tons.	
Repairs and Renewals of track, including interest.	\$ 79,396	\$ 49,099	\$ 113,068	\$ 68,992	\$ 129,912	\$ 103,396
Repairs and Renewals of Machinery.	\$ 84,894	\$ 42,080	\$ 73,553	\$ 51,274	\$ 99,636	\$ 88,682
Motive power expenses.	\$ 54,239	\$ 40,630	\$ 68,372	\$ 7,680	\$ 975,042	\$ 66,371
Interest on capital invested in burthen cars.	\$ 1,350	\$ 1,350	\$ 7,680	\$ 7,680	\$ 9,000	\$ 339,576
TOTALS.	\$ 184,354	\$ 183,864	\$ 252,593	\$ 127,916	\$ 1,401,560	\$ 599,025
Repairs and renewals of track, including interest.	\$ 113,068	\$ 68,992	\$ 129,912	\$ 103,396	\$ 103,396	\$ 339,576
Repairs and renewals of machinery.	\$ 73,553	\$ 51,274	\$ 99,636	\$ 88,682	\$ 64,028	\$ 9,000
Motive power expenses.	\$ 68,372	\$ 7,680	\$ 975,042	\$ 66,371	\$ 3,000	\$ 261,346
Interest on capital invested in burthen cars.	\$ 7,680	\$ 7,680	\$ 9,000	\$ 3,000	\$ 261,346	\$ 800
TOTALS.	\$ 262,673	\$ 135,626	\$ 1,401,560	\$ 599,025	\$ 374,744	\$ 68,232
Difference, all against Plate Rail but the first marked (a).....	\$ 5,438	\$ 7,063	\$ 13,552	\$ 270	\$ 15,470	\$ 8,303

Under these circumstances the board being deeply impressed with the necessity that the road should be repaired in the most substantial manner, on the 5th of January last, in conformity with the report of the Committee of Finance, passed the following resolution :

**"Resolved, That it is expedient that all contracts necessary to the immediate reconstruction of 30 miles of the road be made without delay."**

In conformity with this resolution contracts were entered into with the New York and Maryland Mining company, for a supply of iron and the whole line of the road to the extent of 30 miles was put immediately under reconstruction.

About one-fourth of this distance has been completed, and it is confidently expected that

the remainder will be ready for use before the 1st of January next.

In entering upon a work requiring so large an expenditure, the board of directors calculated upon raising the necessary means by a sale of the company's bonds to the extent of \$1,000,000—and they accordingly authorized bonds to be issued to that extent. Efforts were made both in this country and Europe to that effect, but so far without much success. It is hoped however, that the measures which have recently been adopted by the board will have the effect of placing the bonds upon very high ground as an investment, and of insuring for them a ready sale in the course of the coming year.

The number of passengers carried over the Washington road during the year was 157,156, showing an increase over the year previous of 53,568, and the statement of the revenue shows an increase of \$21,851 50 for the same period.

It is true that a large portion of this increase is due to the great number of passengers which pass over the road during the continuance of the national fair held at Washington city in the month of May last—but a comparison of the receipts from the road independently of this consideration, since the period of the reduction of fare in the month of September, 1845, will show a manifest and decided increase over the corresponding period when the high rates were charged, and the competition with the stages existed.

The condition of the tracks upon this road is entirely satisfactory—the cost for repairs is comparatively light, and the trains proceed without embarrassment, and with but little interruption.

During last winter the citizens both of Virginia and Pennsylvania, feeling a deep interest in the extension of the road to the Ohio river through these States, made earnest appeals to their respective legislatures for the right of way.

In Virginia the effort resulted in nothing more than some slight modifications of the law passed at the previous session, but retaining the most objectionable features in full force.

In Pennsylvania a law passed authorizing the company to pass through that State, which is exceedingly embarrassing in many of its provisions, and moreover is made to be dependent for its vitality upon the failure on the part of the citizens of Philadelphia to subscribe the sum of \$3,000,000 to a company incorporated at the same session to construct a road from that city to Pittsburgh. To what extent that subscription has been made I am not informed, but even if it should fail to the extent required, it is not believed that the law could be accepted by this company.

Authority however, was conferred upon the Pittsburg and Connellsville railroad company to extend their work to the Pennsylvania line upon any of the waters of the Youghiogeny river, and it is understood that that company is about to prosecute its work with a good degree of energy. Should it succeed in accomplishing its object to the point designated, the distance between its terminus and

that of the Baltimore and Ohio railroad at Cumberland, will be so short, as to render the connection between the two works entirely practicable.

When this is accomplished, a continuous line of railroad between Baltimore and Pittsburgh will be established, throwing open the fertile districts of Pennsylvania through which it will pass, and bring the counties bordering even upon the great lakes, to pour their tribute of commerce and wealth into the lap of our own city.

I remain, very respectfully,  
Your obedient servant,  
SAM'L JONES, JR.

OFFICE OF TRANSPORTATION,—Baltimore and Ohio Railroad Company,  
414 Ocker, 1846  
W. S. Woodruff, Superintendent.

AGGREGATE OF PASSENGERS & TONNAGE.

COMPARATIVE SUMMARY OF THE OPERATIONS OF THE "MAIN STEEL" OF THE BALTIMORE AND OHIO RAILROAD,—from 1836 to 1846 inclusive.

AGGREGATE OF PASSENGERS & TONNAGE.

Official Year.	FROM PASSENGERS			Westwardly.			FROM TONNAGE.			Total.	Amount from Tonnage.	Passengers & Tonnage.			
	Passengers.	Amount.	Tons.	b.	q.	lb.	Bls. Flour.	Feet Lumber.	Tons.				b.	q.	lb.
1836	157,102	\$128,136 30	25,893	5	1	0	172,654	.....	40,806	3	3	1	66,703 9	\$153,186 32	\$281,318 53
1837	140,699	116,685 63	33,901	5	3	0	113,870	.....	40,696	4	3	5	74,597 10	155,676 03	301,301 38
1838	150,516	165,683 83	30,079	11	1	3	142,513	.....	47,447	3	3	24	77,526 19	198,530 70	367,324 33
1839	152,501	173,860 44	45,878	4	3	0	152,033	.....	54,575	7	1	4	100,451 12	0 14	395,347 06
1840	162,418	177,085 75	25,638	10	0	9	392,449	.....	62,736	2	1	24	88,374 13	2 9	265,847 95
1841	171,629	169,615 80	33,442	10	0	19	265,818	.....	43,056	4	3	0	65,496 17	3 19	265,847 95
1842	151,568	181,177 35	30,943	15	3	9	323,639	.....	37,600	14	0	19	67,844 10	0 3	511,454 07
1843	149,633	274,617 27	27,191	16	1	3	261,145	4,964	55,523	11	2	20	82,715 8	1 23	321,089 67
1844	173,821	326,876 32	33,294	16	1	2	244,560	6,043	60,886	11	1	23	103,111 7	3 0	300,617 81
1845	202,454	369,982 30	50,551	16	2	3	241,560	16,030	69,865	8	3	20	141,407 0	2 18	381,743 60
1846	280,354	413,341 59	83,559	2	3	9	326,602	18,393	110,356	18	0	32	193,916 1	0 6	394,720 88
Totals	1,885,511	\$2,546,951 94	409,599	18	3	2	3,730,959	44,810	652,547	10	2	12	1,003,147	10 2	829,912 95
															79,853,459,777 79

**Gems from the Copper Region.**  
H. Pierce, Esq., one of the agents of the Montreal Mining Company, has shown to the Editor of the Montreal Pilot, a beautiful agate, set in a silver ring, manufactured at the Cliff Mine, on the south shore of Lake Superior. It is worthy of notice that the silver of this ring was got out of the Cliff Mine, the agate was picked up on the adjoining shore, and cut and manufactured on the spot. Mr. P. also exhibited an agate, from the north shore, of great size and beauty, measuring about an inch and three-quarters by an inch and a quarter. These agates are said to be in great abundance on the north shore.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. E. MINOR, 105 Chestnut St., Philadelphia.

Saturday, April 3, 1847.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

#### Boston and Providence Railroad.

The Fifteenth Annual Report of this road will be found in this number. In its details it is in the prescribed form required by the Legislature. We shall continue to publish these reports, in their new form, that they may hereafter be referred to for comparison.

#### Baltimore and Ohio Railroad Report.

We give in this number—and owe an apology for having so long delayed—the “Twentieth Annual Report of the Baltimore and Ohio Railroad Co.” It was duly received, in duplicate, and should have been published before the close of the volume for 1846; but, like many other things that deserve immediate attention, was laid aside for a careful perusal, and thus thrown out of its proper place. It, however, loses nothing of its value by losing its proper position in the Journal. As usual, and indeed more than usual, it contains valuable statistics in tabular form, which will be mainly found in this or the next number.

The increase of receipts in 1846, over those of the previous year, have been greater—by \$143,084—than at any previous period, and we hazard little in saying that the increase for 1847 will be still greater.

The tabular statements, showing the comparative cost of construction, repairs and working a railroad with the plate and edge rail, prepared from the chief engineer's report, are well worthy of attention, and so are those prepared by the engineer of machinery and repairs, for the years 1845 and 1846. We give the report, including most of the tables, and wish we could add that the efforts of the company to obtain the right of way through Virginia to the Ohio had been successful.

#### New Mortising Machine.

Messrs. Davenport & Bridges, railway carmakers, of Cambridgeport, Mass., have recently put in operation a mortising machine, operated by water power, and which will cut with ease and facility a mortise of any required width and depth. The machine can be adapted equally well to light or heavy work, only requiring a stronger frame and gearing when heavy work is required, than for light. It works

equally well in hard or soft timber, requiring only one hole to be bored in the centre of the mortise, to give the chisel a chance to make the first stroke, and this is done by machinery.

#### Improvement for the Telegraph.

MR. L. SWAN, of Rochester, says the “American” of that city—suggested, several months ago, an improvement in the manner of maintaining the Galvanic Battery, which will prove of no inconsiderable benefit to the telegraph companies, inasmuch as it is a great saving of labor and expense.

The improvement consists in furnishing an exciting liquid which produces an electric or galvanic current of uniform power and intensity, without the rapid decomposition of the metals and acids heretofore supposed unavoidable. The solution does not act chemically on the mercurial amalgam, and with such trifling action on the zinc as to be scarcely perceptible.

Mr. Barnes, the operator in the telegraph office in this city, informs us that previous to adopting this improvement, he was obliged to amalgamate the zinc cups of which the battery is composed, with mercury every day, and to renew the acids twice a week. Since then he has used the battery constantly for five or six weeks, without doing either.

This improvement will doubtless attract the attention of telegraph companies throughout the country, not only on account of the reduction of expense, but also for the reason that it ensures greater uniformity in the action of the battery. It has now been sufficiently tested to remove all doubts in regard to its efficacy. The discovery is eliciting the attention of the scientific, as it is understood that some new principles are developed.

#### Pennsylvania Central Railroad.

The election held on Tuesday for the choice of Thirteen Directors of the Pennsylvania Railroad Company, resulted in favor of the ticket previously agreed upon by a majority of the Stockholders and approved by the City Councils. The following are the names of the gentlemen elected:

Thomas P. Cope,	Richard D. Wood,
S. V. Merrick,	Stephen Colwell,
Robert Toland,	George W. Carpenter,
Thomas T. Lea,	Christian E. Spangler,
David S. Brown,	William C. Corbit,
James Magee,	Henry C. Patterson,
	John A. Wright.

This, we deem an able and responsible Board of Directors—and, if they are as fortunate in the selection of their Engineers and Superintendents as we think, the Stockholders have been in selecting Directors, we anticipate an early commencement and a speedy completion of this important work.

#### New Use for the Telegraph.

A novel project is on foot in the Common Council of New York to run a Telegraph line from the fire lookout on the City Hall, to each of the 18 police stations, to give intelligence of the whereabouts of every fire, so that on hearing the great bell, a person in any part of the city can ascertain at the station house where it is.

#### Cincinnati and St. Louis.

We learn, says the Cincinnati Gazette, from St. Louis, that the Missouri Legislature have passed a bill so amending the city charter that the Councils shall have power to aid the project of a railroad between St. Louis and Cincinnati, by loan, or otherwise, to the amount of half a million of dollars.

The enterprise, however, has received the cold shoulder, in the upper branch of the Legislature of

Illinois—the bill to grant the right of way through that State, having been defeated by a vote of 24 to 15. This result is attributed in part to a determination by northern members to oppose any measure which shall not regard Springfield as a point through which such road shall pass, and in part to the opposition of the citizens of Alton, who will not listen to a proposition to terminate the road in St. Louis instead of their own city.

Public meetings, it is stated, are being held in the central counties, protesting against the action of the Senate, and urging the passage of a bill to grant the right of way on the route from St. Louis to Terra Haute direct.

#### First Principles of Chemistry for the Use of Schools and Colleges.

BY PROF. R. SILLIMAN, JR., YALE COLLEGE.

We are indebted to the publishers for a copy of this excellent text book. A scientific gentleman has recommended it to us as a good book, not only for beginners, but as well suited to the wants of professional men who are anxious to understand chemistry as it is taught at present—and this, by the way, is quite a different thing from the chemistry of by-gone years.

To the engineer and mechanic a knowledge of chemistry is every day found to be necessary. Much trouble and many errors might be avoided by one possessing the amount of information to be obtained from the work before us.

It is often the case that professional men, aware of the usefulness of the science of chemistry, have been deterred from making any attempt to study it, by the necessity of wading through treatises, excellent to be sure, but too voluminous for the beginner, and needing too much previous knowledge of the subject to be read to any advantage. The present book is not liable to these objections, and will prepare the student for more extensive works on the science, or for those special works on professional subjects, which require from the reader a general knowledge of chemistry.

#### Travelling Facilities.

“We are informed, says an exchange, that the abuse of privilege so long complained of by travellers between New York and Philadelphia, are about to be removed; that a cheap freight and passenger train is to be started from Trenton to New York, and that the accommodations on the Amboy line are to be improved.”

Very glad to hear of this! There has long been “room for improvement” upon this line, in the matter spoken of—and we shall be happy to learn that the above statement, and more too, is fact.

#### The Central Railroad.

We cut from the Savannah Georgian of the 8th ult., the subjoined article in relation to the Central railroad, in order that our readers may know what the citizens in different parts of the Union, think of the great enterprise about to be commenced by our citizens.

Another reason which induces us to publish the article is, because it speaks in high praise of a gentleman, whose communication in the United States Gazette, and in this Journal also, some time since, in relation to the Central railroad, attracted our attention and the attention of other gentlemen deeply interested in the success of the enterprise:

The citizens of Philadelphia are bestirring themselves in the great contest for the trade of the far west to some purpose. The requisite amount to entitle them to a charter having been subscribed, and the charter obtained, they are about proceeding with all prudent despatch upon the construction of this

gigantic work, which is to pour the treasures of the west into the lap of their great city. The plan proposes an extension of the road now existing—from Harrisburg across the mountains to Pittsburg—a distance of nearly 300 miles.

The *United States Gazette* some time since published an elaborate article recommending the adoption of the present line of the canal from Harrisburg to Hollidaysburg—the Portage railroad—and the Western division of the canal from Johnstown to Pittsburg, and constructing the road upon the banks of the canal.

The article attracted our attention, from the fact that the writer, Mr. Franklin P. Holcomb, was in the service of the Central railroad of this State from the commencement of the preliminary surveys, until near the completion of the work—made the surveys and final location of nearly the whole road, and afterwards superintended the construction of the heaviest and most difficult part of the work.

The fidelity and ability with which he discharged these important duties, won for him the confidence of the board of directors and their chief engineer.—We know nothing of the merits of the plans recommended by Mr. Holcomb, except from a perusal of his elaborate article, but the experience he has had, and the ability he displayed in his profession while among us would, were we called upon to decide the question, give great weight to his opinions.

That the great enterprise in question, if completed, will be the salvation of the trade of Philadelphia, we cannot entertain a doubt; and we feel not the less interest in their success for its having adopted the cognomen of our own "Central railroad."

#### Great Western (English) Railway.

The following extracts from the last semi-annual Report of the Directors of the Great Western Railway, England, exhibits its affairs in a very flourishing condition. The increase of travel is truly surprising—yet only the natural result of the extension and improvement of the system.

The amount of capital expended by this company is £8,885,605: and the dividend for the last year, 9 percent, upon the shares. The shares issued amount to £4,600,000: and the balance has been raised in the shape of loans.

"With respect to the traffic," says the report, "it may be observed, that in the corresponding period of 1845, precisely the same length of line was open and worked over by this company as in 1846, so that the comparison in the number of passengers, and the tonnage of goods, is a perfectly fair criterion of the increase conveyed over identically the same railway; and this review of the business of the company indicates more satisfactorily the features of progressive trade, when it is remembered that the excitement of 1845, with the numberless schemes and the travelling consequent thereon, is thus contrasted with the almost entire cessation of such speculative movements during the latter part of 1846. The increase in 1846 has been at the rate of 503 passengers per diem, viz: 92,598 for the half-year, with an additional trade of 23,975 tons of goods. While the accommodation of more frequent trains has been afforded, it cannot fail to be observed with satisfaction that the employment of two locomotive engines for the occasional assistance of trains has been greatly diminished in the number of miles run, as compared with the similar period in the years 1844 and 1845. This result is mainly to be ascribed to the improvements and increase of power in the locomotives, of which the broad gauge is susceptible; the importance of which, as essentially requisite for the growing demands of traffic throughout the country, is developing itself more and more, as well to the public as to the proprietors, by each day's experience. \* \* \* \* \*

"The balance now disposable being £318,856 19s. 7d., the directors recommend that a dividend of four per cent. be declared for the half-year ending the

31st of December, 1846; payable on or after the 1st of March, to the proprietors registered on the company's books, when they were closed on the 8th Feb., which dividend will amount to £211,002 4s. 9d., and leave a balance of £7,853 14s. 10d. to be carried to the credit of the next half-year's account."

#### Cincinnati and Hamilton Railroad, and Improvements in Ohio.

The following letter is given, though not designed for publication, to show the progress of improvement in the west. It is from one who has, as he says, "*been a long time with us*," and what is equally gratifying, he has *usually* been in *advance* with us—as now—for which we are deeply indebted to him.

His letter is dated, "Hamilton, Ohio, March 22," and he says: "I enclose \$5 00 to pay for the present volume of the Railroad Journal. You will oblige me by sending the 25th No. of 1846, also the 7th No. of 1847. I would have been pleased to send you a few new subscribers, but there are so few here who take an interest in such papers as the Railroad Journal, that it is difficult to find one. About the 1st of next month I shall commence the location of the Cincinnati and Hamilton railroad—a preliminary survey of which I made last fall, a year ago, before a charter was obtained. The line passes thro' the *finest portion* of Ohio—and, indeed, of the whole west—unsurpassed in fertility and water power. At this point, by the exertions of a few, one of the finest water powers west of the Allegheny mountains, has been created, capable of driving 180 mill stones of 44 feet diameter each, much of which is now occupied; and our town is fast filling up with an enterprising population. The power has cost us about \$50,000. The races, reservoirs, etc., are on a magnificent scale, and Hamilton must be, at no distant day, to Cincinnati, what Lowell is to Boston. My dear sir, you may some day wander thus far west, and should you ever do so, call and see me—one who has continued with you as a *subscriber* for a great many years—and I will take pleasure in showing you what a *little enterprise* has done; and that, too, without much means. Hamilton is delightfully located on the Great Miami river, and as yet has not created much noise in the world; but when our railroad is finished, and our water power taken up, you will then hear favorable accounts of Hamilton. The minimum discharge of the Great Miami river is 25,000 cubic feet of water per minute; the actual fall at this place 29 feet. The distance from this point to Cincinnati, by the route of our railroad, is about 23 miles; no grade greater than 25 feet per mile. We are connected with Cincinnati by a canal and two turnpike roads; the roads are constructed with broken stone and gravel, and are generally in fine order and much travelled. I left Philadelphia in 1828, and have resided in Ohio and Indiana ever since. I have often been at the point of visiting my relatives in Philadelphia, but have not yet done so—but hope to during the present year, and should I do so, I will make the "Franklin House" my head quarters. Yours respectfully, J. W. E."

The proposed road, alluded to by our correspondent, will pass through a section of country well known in Ohio as one of the richest in agricultural wealth—in the west. It is filled with a hardy and industrious population, and its water power is immense. The amount of travel, and the transportation of goods along this line, is now very great, and with railroad facilities it will necessarily be very largely increased, and must yield, we judge, a very handsome profit upon the investment. The location as referred to in the above letter is a most excellent one, and we hope to see the work pressed forward to

early completion. We shall be happy to hear from our friendly correspondent again.

In connection with this communication, we give place to the following article which we find in a late Cincinnati paper—and which furnishes some interesting details, as regards this route.

"A meeting of the Board of Directors of the Hamilton Railroad Company,"—says the paper we quote from—"was held in Cincinnati on Monday last. As this is a work of great importance to our city, we have taken some pains to collect and collate such portions of its history, statistics and prospects as could be procured from authentic sources.

"The charter of this road was granted by the legislature of 1845-6. Sometime in the fall of the last year, books were opened for the taking of stock, and a sufficient amount being subscribed for that purpose, the company organized on the 1st of January and elected the following named gentlemen as a Board of Directors: John C. Wright, Samuel Fossdick, Charles Anderson and Joseph Longworth, of this city, and William Bebb, John Woods, John W. Erwin, L. D. Campbell and A. P. Miller, of Hamilton.

"This Board elected for their President, Lewis D. Campbell, of Hamilton; John C. Wright, Treasurer, and Charles Anderson, Secretary. The Board as will be seen is principally composed of practical and sound business men; the majority of them occupying positions with regard to the public, which guarantee that the work will be carried on with sufficient force and vigor. They certainly gave evidence of their superior judgment in the selection of their officers, who are men of well known industry and energy.

"The route contemplated is along the Millers Creek valley; (the terminus of the road to be located at some point in the northwestern part of the city,) through the towns of Carthage and Springdale, thus avoiding the hills. The surveys are ordered to be commenced on the 1st day of April, and it gives us pleasure to state, that stock enough is already subscribed to justify the letting of contracts for the grading of the entire road. The grading will most probably be put under contract as early as next May, and the work pressed forward to completion with all possible despatch.

"This road will pass through one of the most fertile regions upon the face of the globe—a country unsurpassed for its agricultural products and manufacturing advantages. The work is then certainly destined to become one of the most important arteries which furnish the life blood and healthy action of our city. Any one who is familiar with Boston, and the sterile country surrounding it on every side, through which works of this kind ramify in all directions, all of which are profitable stock, must be satisfied with the great importance of the railroads, which must, at no distant time, diverge at all points from the growing Queen of the West, throughout the fertile region which contributes so largely to her growth and support. The town of Hamilton with its extensive hydraulic power, and manufacturing facilities, is without doubt, destined to occupy as important a position to this city as Lowell does to Boston.

"The travel between these two points already demands additional facilities for its accommodation. There are now three daily lines of stages, one omnibus, and canal packets, running on the route, which convey about 75 passengers, besides travel by private conveyance, which brings the number up to 100 daily, and the number is rapidly increasing.

"As regards the freight transportation, we have it from good authority, that during the past winter, it was no uncommon thing for over 200 large covered wagons, transporting the products of the great agricultural region west, and returning with goods from the city, to pass through the towns of Hamilton and Rossville, daily.

"Should the contemplated railroad from this city to St. Louis go on, this work will certainly constitute a portion of that road. The route through Hamilton, Rossville, Eaton, Richmond, Indianapolis, and so on westward, being decidedly the most eligible. We trust that our citizens will furnish all the 'aid and comfort' within their power, to push forward this work to a speedy completion."



## Massachusetts Annual Railroad Reports.

Return of the Boston and Providence Railroad, under the Act of April 16, 1846.

Capital stock .....	\$2,160,000
Increase of capital since last report .....	200,000
Capital paid in, per last report .....	1,960,000
Capital paid in since last report .....	200,000
Total amount of capital stock paid in .....	2,160,000
Funded debt, per last report .....	
Funded debt paid since last report .....	
Funded debt, increase of, since last report .....	Nothing.
Total present amount of funded debt .....	
Floating debt, per last report .....	
Floating debt paid since last report .....	
Floating debt, increase of, since last report .....	Nothing.
Total present amount of floating debt .....	
Total present amount of funded and floating debt ..	
Average rate of interest per annum on do. ....	

## COST OF ROAD AND EQUIPMENT.

Cost of road and equipment, including Seekonk and Dedham branch roads, as per last report .....	1,964,677 16
Amount expended on road and equipment, including Pawtucket branch road, during the past year ..	144,778 20
Total cost of road and equipment, including Seekonk Dedham and Pawtucket branch roads .....	2,109,455 36
For graduation and masonry, per last report .....	
For graduation and masonry, paid during the year ..	
Total amount expended for graduation and masonry ..	
For bridges, per last report .....	
For bridges, paid during the past year .....	
Total amount expended for bridges .....	
For superstructure, including iron, per last report ..	
For superstructure, including iron, paid during the past year ..	
Total amount expended for superstructure, including iron ..	
For stations, buildings and fixtures, as per last report ..	
For stations, buildings and fixtures, paid during the past year ..	
Total amount expended for stations, buildings and fixtures ..	
For land, land-damages and fences, per last report ..	
For land, land-damages and fences, paid during the past year ..	
Total amount expended for land, land-damages and fences ..	
For locomotives, per last report .....	
For locomotives, paid during the past year .....	
Total amount expended for locomotives .....	
For passenger and baggage cars, per last report .....	
For passenger and baggage cars, paid during the past year ..	
Total amount expended for passenger and baggage cars ..	
For merchandize cars, per last report .....	
For merchandize cars, paid during the past year .....	
Total amount expended for merchandize cars .....	
For engineering and other expenses, per last report ..	
For engineering and other expenses, paid during the past year ..	
Total amount expended for engineering and other expenses ..	

## CHARACTERISTICS OF ROAD.

Length of road .....	41 miles.
Length of single track .....	28½ miles.
Length of double track .....	12½ miles.
Length of branches owned by the company, stating whether they have a single or double track .....	6-6 miles, single track. 2 1-5 miles completed.
Weight of rail per yard in main road .....	56 pounds.
Weight of rail per yard in branch roads .....	37½ pounds.
Maximum grade, with its length in main road .....	
Maximum grade, with its length in branch roads ..	
Total rise and fall in main road .....	548 feet.
Total rise and fall in branch roads .....	
Shortest radius of curvature, with length of curve in main road .....	
Shortest radius of curvature, with length of curve in branch roads ..	
Total degrees of curvature in main road .....	
Total degrees of curvature in branch roads .....	
Total length of straight line in main road .....	
Total length of straight lines in branches .....	
Aggregate length of truss track bridges .....	1242 1-12 feet.
Aggregate length of truss road bridges .....	203 4-12 feet.
Whole length of road unfinished on both sides .....	

## DOINGS DURING THE YEAR.

Miles run by passenger trains .....	140,874
Miles run by freight trains .....	51,786
Miles run by other trains .....	6,268
Total miles run .....	198,928

N.B. The Treasurer's books do not show the cost of road and equipment in the detail required by the Act of April 16, 1846.

Number of passengers carried in the cars .....	476,515
Number of passengers carried one mile .....	7,453,177
Number of tons of merchandize carried in the cars ..	82,192
Number of tons of merchandize carried one mile ..	1,962,769
Number of passengers carried one mile, to and from other roads .....	1,257,984
Number of tons carried one mile, to and from other roads .....	595,128
Average rate of speed adopted for passenger trains, including stops .....	25 miles per hour.
Average rate of speed adopted for freight trains, including stops .....	12 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile .....	4,842,223
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile .....	3,916,924

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron ..	\$16,318 54
For repairs of truss bridges .....	4,581 48
For renewals of iron, including laying down .....	2,951 26
For wages of switch-men, gate-keepers and flag-men ..	629 23
For removing ice and snow .....	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses .....	959 23
Total for maintenance of way .....	\$25,439 74

## MOTIVE POWERS.

For repairs of locomotives .....	12,173 34
For new locomotives to cover depreciation .....	13,000 00
For repairs of passenger cars .....	3,814 46
For new passenger cars to cover depreciation .....	
For repairs of merchandize cars .....	5,314 61
For new merchandize cars to cover depreciation ..	
For repairs of gravel and other cars .....	
Total for maintenance of motive power .....	34,302 41

## MISCELLANEOUS.

For fuel and oil .....	42,350 04
For salaries, wages and incidental expenses, chargeable to passenger department .....	22,923 58
For salaries, wages and incidental expenses, chargeable to freight department .....	13,641 43
For gratuities and damages .....	2,261 56
For taxes and insurance .....	1,508 21
For ferries .....	6,072 27
For repairs of station building, aqueducts, fixtures, furniture .....	3,633 81
For interest .....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company .....	
For amount paid other companies as rent for use of their roads, specifying each company : [Boston and Providence Railroad and Transportation Co., for use of their road in Rhode Island] ..	7,958 78
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items .....	10,287 65
	109,937 33
	\$169,679 48

## INCOME DURING THE YEAR.

## For Passengers:

Main road .....	\$156,196 65
Dedham branch .....	24,288 94
Taunton branch .....	40,897 10
Stoughton branch .....	9,103 58
	\$220,486 27

## For Freight:

Main road .....	87,852 49
Dedham branch .....	1,225 49
Taunton branch .....	16,814 60
Stoughton branch .....	4,989 65
	110,882 23

From rents .....	679 11
Interest and premium on sales of stock .....	9,648 12
Dividends on stock of Stoughton branch railroad ..	3,000 00
Mails .....	6,179 10
	360,875 03

Total income .....	360,875 03
Net earnings after deducting expenses .....	191,195 55

## DIVIDENDS.

Two of 4 per cent. each .....	172,700 00
Surplus not divided .....	18,495 55
Surplus undivided January 1, 1846 .....	83,743 97
Total surplus .....	\$102,238 52

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

No estimate has heretofore been made of the depreciation of the road, bridges and buildings. The road has been opened for use for nearly 12 years, and all the fixtures upon it have been kept in good repair. It is supposed that the whole depreciation may be justly estimated at about \$20,000.

In 1844, the amount of \$40,000, and in 1845, the amount of \$36,004 84, was charged to income account for depreciation of cars and engines. The stock of cars and engines has not depreciated during the last year, the additions having much exceeded in value the deterioration of the old stock.

## ACCIDENTS.

The directors report the following accidents as having occurred during the year:

March 18, Jas. Hagar, a fireman, in the employ of the corporation, fell from the engine while the train was in motion, and was killed.

April 10th, — Clifford sustained a fracture of a leg, in attempting to cross the track in front of an approaching engine.

April 16th, Abraham Hodgson stepped upon the track when the train was within a few feet of him, and was killed.

July 3d, P. Cunningham, a passenger, was killed between two cars, in attempting to pass from one car to another, while the train was in motion.

Oct. 15th, — Snyder was killed in attempting to cross the track, in front of an approaching train.

Nov. 17th, G. E. Fellenious was killed while walking on the track.

C. H. Warren, Wm. Sturges, Wm. Appleton, James K. Mills, John Bryant, Jr.—Directors.

Boston, January 20th, 1847.

## Portable Cottages.

"There is said to have been established at Cincinnati a manufactory of *Portable Cottages*, so constructed that while they constitute very comfortable dwelling houses, they can be readily transported from one location to another with little trouble or expense. We have often wondered that something of the kind had not been introduced."

We copy the above from the "New York Farmer and Mechanic"—and will add that a friend of ours, who resided in Cincinnati last season, informs us that he visited the "manufactory" spoken of—and was invited by the owner to take passage with him on the occasion of one of these "portable cottages" leaving the establishment, to be erected. The party went on board a small boat, the cottage was shipped, and half a dozen men went down the Ohio river, a distance of some 20 miles—where the house was to be "put up." They moved the materials (which of course had all been prepared, like the different portions of a wardrobe or bedstead) to the spot chosen for its erection, and the next evening the party all took tea with the family, and returned home again! The house (four rooms, with three closets) was grooved, morticed, and put up in "good shape"—and occupied, within forty-eight hours after it left Cincinnati.

## Magnetic Telegraph.

The Cincinnati Gazette states that an agreement has been entered into with Mr. Henry O'Reilly and the Trustees of Morse's patent right, in the West—whereby all difficulties between the parties may be adjusted. The signatures of the patentees at Washington, is all that is required to complete the arrangement. By the terms of the agreement, Mr. O'Reilly will construct the line from Pittsburg to Columbus, and Mr. Case the line from Columbus to Louisville. The work is to be done so as to have the line in operation to Cincinnati and Louisville by the first of July. The arrangement is looked upon as highly advantageous to the subscribers to the stock, on the lines between Pittsburg and Louisville, and between Louisville and New Orleans.

The obstacles in the way of the construction of this important chain of communication being re-

moved, "we have now a prospect," says a late Columbus paper, "that on the 4th of July next, the dealer in produce in Columbus may step into the Telegraph office, and for the cost of two or three dimes, and in less than that number of minutes, ascertain the prices of his commodities in Philadelphia, New York and Cincinnati. What transpires in New York and Boston in the morning, will be published in the Columbus papers by noon. This is truly a wonderful age in which we live! Mr. Bravo, of 'The Commercial Rooms,' in New Orleans, is appointed agent in that city for the Western Telegraph Company. The sum only of \$75,000 is required to carry the line from New Orleans through the Western States to Cincinnati, and thence to Pittsburg, and so on to Philadelphia."

## ITEMS.

*Inspection of the Paris and St. Germain Atmospheric Railway.*—On Sunday morning at about nine o'clock, a special train of the Paris and St. Germain railway, left Paris with the Minister of Public Works, and the committee charged to examine, and, if satisfied, authorize the opening to the public of the portion of the line which connects, by means of the atmospheric principle, the station of Pecq, with the town of St. Germain. The committee consisted of MM. Arago (president,) Cordier, Vauvilliers, Pouillet, Piobert, Mallet, Combes, Bineau, etc. A great number of persons who had received invitations, went by this train. The Minister of Public Works, on arriving at the atmospheric portion of the line, visited every part of the works, and, in conjunction with the committee ordered several experiments to be performed, in order that they might be convinced of the power and security of all the means employed. After this visit of inspection, which appeared to give general satisfaction, the ministers and the members of the commission returned to Paris.

*Extraordinary Wire Rope.*—(From a Correspondent.—As your valuable Journal is one of the greatest mediums of the industrial arts, I beg to communicate an extraordinary production of the art of rope making. Thursday, on passing the celebrated Galvanized Iron and Wire Rope Works of Mr. Andrew Smith, Millwall, Poplar, I witnessed the shipment of a wire rope, which the manager of the works informed me was no less than 3600 yards long, 3 inches circumference, and weighed 7 tons 15 cwt., and ordered for an incline plane in Lancashire, between Blackburn and Bolton. This is, no doubt, the largest wire rope ever yet been made; and I was informed, that it was only commenced last Monday, and that the wire was in bars of iron not more than ten days before. What will Russia say to this, Mr. Editor?—*Atmospheric Railway Gazette.*

*Iron Bridge Rails.*—We understand that Mr. Wood, of the British Iron Company's Works, Abersychan, succeeded in rolling, during last week, bridge rails weighing 90 lbs. per yard, 30 feet long; and finer and more perfect rails, a correspondent asserts, were never seen. This is but one of the many instances in which Mr. Wood has proved his great skill and extensive practical knowledge of the manufacture of rails and

other iron, as well as the *minutiae* of the iron manufacture generally—as the workings for which this establishment is celebrated fully testify.—*Atmospheric Railway Gaz.*

*The New York Canal Board* has determined to reduce the rate of toll on corn meal, which has heretofore paid the same rate as wheat flour, viz: four mills on 1000 lbs. per mile. Hereafter the toll on corn meal is to be three mills per 1000 lbs. per mile, being the same rate at now charged on corn.

*Ocean Steam Navigation.*—The city of Bremen has subscribed \$100,000, the government of Prussia, \$100,000, the free city of Frankfort, \$20,000, and other cities sums corresponding to their abilities, towards the establishment of the steamship line between New York and Bremen.

*Tonnage on the Upper Lakes.*—The tonnage on the upper lakes for the business of 1847, is estimated by the Buffalo Commercial Advertiser, at 87,743 tons, added to which are several vessels now in course of construction, which will be completed during the season, and will swell the aggregate to 100,000 tons. This tonnage furnishes employment to over 6000 persons. A safe and profitable business has been pursued during the season of 1842.

*The Sound Steamers.*—The New York Herald says the Oregon is to be put upon the Stonington route next week, with Captain Thayer as her commander. Improvements have been made upon her the past winter, at an expense of \$14,000. An improvement has been made in the construction of her steam chest and pipe, so as to prevent the possibility of its breaking, as in the case of the Atlantic. She will now carry two 1½ inch chain cables, each ninety fathoms in length, and an additional anchor of 2000 pounds.

*Penobscot and Kennebec Railroad.*—A mass meeting of the citizens of the Penobscot, Somerset and Piscataqua was held at Dexter, Me., in reference to a railroad from the Kennebec to Bangor. Resolutions were adopted declaring that in the opinion of the meeting, the time had come when a railroad from the Kennebec river to Bangor can be accomplished, and that the citizens between those rivers "can and will subscribe to the stock of the Penobscot and Kennebec railroad, the sum of \$200,000.

*Wealth of Philadelphia.*—Philadelphia can boast of a vast amount of wealth in the real and personal property of the city and county alone, without counting the immense amount invested in trade and commerce, and the heavy stocks of goods in the stores and warehouses of the city. The following is an exhibit of the assessed value of the real and personal property of the city and county as returned to the State Government.

Real estate.....	\$105,939,405
Horses and cows.....	417,467
Personal property.....	1,574,681
Furniture (above \$300).....	2,608,115
Carriages.....	163,463
Emoluments of office.....	173,117
Money at interest.....	21,019,336
Watches, about.....	100,000

\$131,995,646



**NORRIS' LOCOMOTIVE WORKS.**

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	×	20 inches	Stroke.
" 2,	14	"	"	"	×	24 " "
" 3,	14½	"	"	"	×	20 " "
" 4,	12½	"	"	"	×	20 " "
" 5,	11½	"	"	"	×	20 " "
" 6,	10½	"	"	"	×	18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear-ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** 4 South Front St., Philadelphia. 294

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** ja45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.****WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 15 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and the LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 114

**PATENT INDESTRUCTIBLE WATER**

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
ja45 Reading, Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
284 79 Water St., New York.

**THE SUBSCRIBERS, AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mill) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10:39 41f

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,**  
143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 23 17

**ENGLISH PATENT WIRE ROPES.—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4 1/2	12 5	10	21 -		50	15-16	20
13	3 1/2	8 3	8 1/2	16 -		37	11-16	13 1/2
14	3 1/4	6 11	7 1/2	12 8		17	9-16	10 1/2
15	2 3/4	5 9	6 1/2	9 4		13 1/2	1-2	7 1/2
16	2 1/2	4 3	6	8 9		10 1/2	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

**WILLIAM ROE, Sup't of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.]

**T. L. SMITH,**

Jersey City, November 4, 1845.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

Jamaica November 12, 1845.

[Signed.]

**JOHN LEACH,**

Sup't Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,

138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 if

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. McKee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.  
Philadelphia, Pa., April 6, 1844.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

••• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, ja45 Paterson, N. J., or 60 Wall street, N. York. ty

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 34
13,000 Spikes = 2,250 lbs. at 4½ cts =	101 25
Workmanship free of patent charge.....	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 330

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, 1y10 near Third, Philadelphia.

### LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE

Pres't. Mt. Savage Iron Works, Maryland.  
Dec. 25, 1y\*

#### ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

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SATURDAY, APRIL 10, 1847.

[WHOLE No. 564, VOL. XX

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.  
J. W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES** connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Paras.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50 and \$3.00	
" " Reading,	58	2.25 and 1.90	
" " Pottsville	34	1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 9 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

SUMMER ARRANGEMENT,  
April 1, 1847.

**PORTLAND TRAINS.**

Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**

Leave Boston at 8½ A.M. and 3 P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 11, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

11y31 CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—  
Leave New York at 7 A.M. and 4 P.M.

" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—  
Leave New York at 5 P.M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Millford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.

13th

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad: Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Sup't

### TROY RAILROADS.—IMPORTANT NOTICE.

Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs. This road is now, and laid with the heaviest iron rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 11 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 a.m. and 4 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest iron rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 a.m. and 1 p.m. and 6 p.m., or to connect with the trains for the west; leave Schenectady at 9 a.m., 8 a.m., 1 p.m. and 3 p.m., or on arrival of the trains from Buffalo and intermediate places.

### TROY AND SARATOGA RAILROAD.

#### THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 a.m., (arriving one hour in advance of the train from Albany,) and at 3 p.m. Returning, leave Saratoga at 9 a.m. and 3 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846. 1y 32

### BALTIMORE AND OHIO RAILROAD.

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 and 10 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 13y1

### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tilters etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 3y19 1y

### BALTIMORE AND SUSQUEHANNA

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.

The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at..... 9 a.m. and 3 p.m. Arrives at..... 9 a.m. and 6 p.m. Leaves York at..... 5 a.m. and 3 p.m. Arrives at..... 12 p.m. and 8 p.m. Leaves York for Columbia at..... 1 p.m. and 8 a.m. Leaves Columbia for York at..... 6 a.m. and 2 p.m.

Fare to York..... \$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12 1/2  
Way points in proportion.

### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg..... 3  
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at..... 5 1/2 p.m. Returning, leaves Owning's Mills at..... 7 a.m.

D. C. H. BORDLEY, Supt.  
31 ly Ticket Office, 63 North st.

### CENTRAL RAILROAD-FROM SAVANNAH TO MACON.

Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Freight. Rates of Passage, \$8 00. Freight—  
On weight goods generally..... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil)..... \$1 50 per barrel.  
On brls. dry (except lime)..... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
On hdds. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd.  
On molasses and oil..... \$6 00 per hhd.  
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, Gen'l. Supt. Transportation.

### NEW YORK & HARLEM RAILROAD

CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 9 p.m. [freight train,] 9 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 3 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 20, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 15 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

### PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Whole Arrangement.

Philadelphia for Baltimore..... 6 a.m. and 4 p.m.  
Baltimore for Philadelphia..... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m. J. R. THOMAS, Engineer and General Superintendent.

### GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHICALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and

Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothicaloga on the Oostenaula River, in Cass Co., Georgia.

#### RATES OF FREIGHT.

		Between Augusta and Oothicaloga, 250 miles.	Between Charleston and Oothicaloga, 388 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothicaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846. 44 1y

### THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothicaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothicaloga for Chazanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1



**CENTRAL AND MACON AND WESTERN RAILROADS, Ga.**—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta	To Oothcaloga
On Weight Goods—Sugar, Coffee, Liquor, Baggins, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs.	35
Crockery, per cubic foot.....	0 15	" 35
Molasses and Oil, per hhd. (smaller casks in proportion). 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, \$4.00		
Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846.

**GREAT SOUTHERN MAIL LINE, VIA** Washington City, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$31 00  
" " " " Richmond.....6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to  
STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Elliotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 30 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Elliott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLIOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 6th street,  
Philadelphia, Pa.

**LITTLE MIAMI RAILROAD, OPEN** TO SPRINGFIELD—Distance 84 miles—connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.  
Returning, will leave Springfield at 4 hours 36 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon.....\$1 00  
" " " " Xenia.....1 50  
" " " " Springfield.....2 00  
" " " " Columbus.....4 00  
" " " " Sandusky City 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at H. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
W. H. CLEMENT, Supt.

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads, and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2 [10] 68 Broad St., New York.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
445 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September; and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
75 Water St., New York.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

**THE SUBSCRIBERS, AGENTS FOR** the sale of Codorus, Glendon, Spring Mill and Valley, Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,  
59 North Wharves,  
Jan. 11, 1846. [14] Philadelphia, Pa.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

148 77 Pine St., New York.

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by  
A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip,  
New York.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturers, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del. Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON.** Mar. 20th 4 South Front St., Philadelphia. 28th

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 36x33 ft. with lathes, work benches, Work shop, 66x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x30 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 64x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

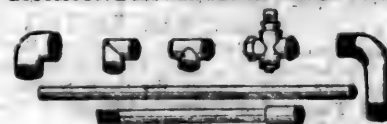
For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.** j45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

## WELDED WROUGHT IRON TUBES

From 4 inches to 4 ft in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS,** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

J. BALL &amp; CO.



**Baltimore and Pittsburgh.**

The *Baltimore American* of March 17, contains the following brief sketch of matters relating to a subject which just now occupies the attention of many of our readers—and we give the article entire—without comment at present. The *American* says:

When the Baltimore and Ohio railroad was first projected no definite terminus was fixed upon, either in Virginia or Pennsylvania—the great object in view being the construction of a road to the Ohio river. The route beyond the confines of Maryland, was undetermined. In order, however, to secure a choice of routes for future selection, or for branching to different points, the States of Virginia and Pennsylvania were applied to for the privilege of carrying the road through their respective territories. The privilege was granted in each State with the utmost liberality. Virginia allowed the road to strike the Ohio at any point above the mouth of the little Kanawha; Pennsylvania opened her territories to the road in view of its termination at Pittsburg.

When the limitations of time designated by these Acts had respectively expired, the road by reason of various difficulties not having been so completed, a less liberal disposition prevailed both in Virginia and Pennsylvania towards the work. The former State refuses the right of way except to one point, and that is conceded under conditions which have decided the company to reject it at once and again. Pennsylvania, also, when requested in 1839 to renew the privileges formerly granted, took occasion to load the renewal with such restrictions and provisos as to render its acceptance impossible.

Closed out from both States the city of Baltimore, if left to her own resources, might have to wait long before an available route to the Ohio would be at her disposal. But it so happens that the city of Pittsburg has secured a charter by which an unobstructed way is obtained from Cumberland, the present terminus of the road, to the Ohio river at Pittsburg—and the facilities of this charter are proffered to the Baltimore company.

Now when it is remembered that the original enterprize of the company contemplated the construction of a road to the Ohio river, without reference to any ascertained route, or definite point of termination, it would seem that the main object aimed at is placed within the company's reach by this proffer on the part of Pittsburg. It will not do to say that Pittsburg was never looked to as one of the desirable points on the Ohio at which the road might be happily terminated. The fact is otherwise. The Pittsburg route has been explored by the company's engineers; and not only explored—it has been found to be the shortest route from Cumberland to the Ohio; more than that, it has been found to be the cheapest route. The distance from Cumberland to Pittsburg is 144 miles; and the respective distances from Cumberland to other points on the Ohio are thus set down: to Wheeling, through Pennsylvania, 176 miles; through Virginia, 205 miles; to Fishing Creek, 196 miles; to Parkersburg 223 miles.

Such are the respective distances from Cumberland to the points designated, as reported by B. H. LATROBE, Esq., the company's chief engineer, in 1845. The route then to Pittsburg, as compared with the route through Virginia to Wheeling, the only southern route now open to the company, is 61 miles shorter; and according to Mr. LATROBE's estimate of the expense of construction and operation, it is less expensive by some \$6,000,000. "It has been shown," says Mr. LATROBE, in his report in 1845, when the Virginia law of that year relative to the Wheeling route was under consideration by the company, only to be promptly rejected—"it has been shown that to construct and work the road from Cumberland to Pittsburg would cost about \$6,000,000 less than to Wheeling through Virginia on the route indicated by the law, and nearly \$4,000,000 less than to the mouth of Fishing creek. To secure the advantages of the Fishing creek terminus it is not doubted would be worth this additional 4,000,000, but it is equally unquestioned that to reach the Wheeling terminus would not be worth the difference of 6,000,000; so that if the choice were between Pittsburg and Wheeling through Virginia, the former should be preferred; and while there is any prospect of obtaining sooner or later, from Pennsylvania the right to make it upon acceptable terms, the route now exacted by the Virginia law should not be adopted."

The right to make the road to Pittsburg upon acceptable terms is obtained from Pennsylvania; the privilege is now at the company's option; the only alternative route to the Ohio is the one to Wheeling which was rejected in 1845, and which Mr. LATROBE says should not be adopted while there is any prospect of obtaining sooner or later, from Pennsylvania the right to make the road upon acceptable terms to Pittsburg.

The cost of construction from Cumberland to the Ohio with double track, and operation with a trade of 150,000 passengers and 60,000 tons of freight per annum, upon the several lines on which estimates have been made, are stated by Mr. LATROBE in round numbers thus:

	Construction, actual cost.	Working, equiv. cap.	Total.
1. To Pittsburg.	\$5,481,707	6,124,581	11,606,288
2. To Wheeling, thro' Penn.	6,771,236	7,770,262	14,541,498
3. To Wheeling, thro' Va.	8,348,832	9,295,274	17,644,106
4. To F. Creek.	7,170,250	8,273,315	15,443,565

It thus appears that if the choice of all routes to the Ohio were open to us, the route to Pittsburg would be the shortest and the cheapest; and that, as compared with the route to Wheeling, through Virginia (the only alternative route within our reach) it is cheaper on the aggregate by some \$6,000,000.

The serious question now presents itself to the Baltimore and Ohio railroad company and to this community and presses for a special answer, whether we shall devote all our means and efforts to the prosecution of the road to the Ohio by the shortest and cheapest of all the routes, or suffer the road to stop

where it now is, at Cumberland, in the vague expectation that at some indefinite time the Legislature of Virginia may open the way to a terminus at Fishing creek. Is it not better to go at once to Pittsburg? We can there have a terminus to rest upon; and when, in the enjoyment of a lucrative trade from that source, the Legislature of Virginia shall invite us to extend our road to a southern terminus at any point above the Little Kanawha, we will have it in our power to demand terms from Virginia in the shape of a liberal appropriation for the work. The people of North-western Virginia will do this; and we can leave them to take their own time.

**Railroad to Pittsburg.**

The following extracts will give some idea of the state of feeling existing in regard to the road from Baltimore to Pittsburg: we find them in the *Pittsburg papers*—and a good deal of concern seems apparent there, in reference to the turn affairs have taken finally! The committee have responsible duties before them, as will be seen. A late number of the *Baltimore American* says:

Our community is awaiting with profound interest the result of the proceedings of the Committee appointed on Monday last at the meeting of the Stockholders of the Baltimore and Ohio Railroad Company. It is a subject of very general regret that the Committee did not proceed to Pittsburg, in conformity with the instruction of the Stockholders: the expectation being confident and, we think, well founded, that personal intercourse, maintained on both sides in a frank and friendly spirit, would accomplish, surely and happily, the object of restoring good feeling, and a hearty co operation in the consummation of a purpose of deep concern to both cities.

We observe that the Pittsburg and Connellsville Stockholders' meeting was to take place on Friday, and not Thursday. What disposition was made of the letter of the Baltimore Committee we have yet to learn. The following extracts from Pittsburg papers go to show the importance of having the Committee present there in person:

From the *Pittsburg Gazette*.

A Committee has been appointed by the Baltimore Stockholders, who will probably reach here in time for the meeting of our Stockholders on Friday. These gentlemen will of course be received with all the courtesy and kindness which their personal character, as well as the importance of their mission, require at our hands; but we hope there will be no official negotiation with them, unless they come clothed with power to contract a permanent alliance, such an one as will have a binding effect upon the Baltimore company. We have had enough of committees going to and fro, and long-winded negotiations, and in the end have been further from a consummation than when we commenced. We can as well close the matter now as six months or a year hence, and if there is any disposition on the part of the Baltimore company to do so, it will be done.

From the *Pittsburg Journal*.

A committee has been appointed to visit Pittsburg, for the purpose of coming to a

conclusion in regard to the Connellsville route. The committee is composed of gentlemen whose characters for honor and integrity is undoubted: one of them has been long and well known to us. We hope that they will be received and treated with marked attention, and without any allusions calculated to hurt their pride or feelings. Let our conduct to them be in such strong contrast to theirs towards us, as to make them carry hence with them a lasting impression of our true greatness and magnanimity. We should remember, that we owe one debt to Baltimore, one that should make us pass over many faults, and that is the "determination of Philadelphia to build the Central railroad"—without the rivalry of Baltimore, the old Quakers of the City of Brotherly Love, would never have extended their vision beyond the Schuylkill. Baltimore has done us this kindness, and we thank her for it—and we may also thank her for not giving us a chance to precipitate ourselves too deeply into the stock of the Connellsville railroad. The surplus capital of Pittsburg will find ample employment in the construction of the Western railroad.

The Pittsburg Commercial Journal, of Saturday, has the following account of the proceedings of the meeting of the Stockholders of the Pittsburg and Connellsville road held in that city on Friday last:

The meeting of the Stockholders of the Pittsburg and Connellsville railroad yesterday in Philo Hall, was very numerous attended.

The meeting was organized by Mr. Eichbaum taking the chair; Dr. E. D. Gazzam acting as secretary.

A number of sets of resolutions were offered, and the prospects and present condition of the company discussed with much ability by Messrs. Wm. Robinson, Jr., Loomis, Larimer, Graft, Craig, Ebbs, Darsie, Denny, Bigham, Bakewell, Gazzam, and others.

The Hon. Andrew Stuart, of Fayette, being present, on motion of Col. Robinson, he was requested to address the meeting. Mr. S. complied in a few very neat and highly practical remarks. Another gentleman from Fayette, whose name we did not hear, also made some remarks, and submitted a series of resolutions.

Mr. Bigham explained his views in relation to the project of a western railroad, in his usual animated style.

Mr. Darsie expressed his conviction that the right of way for a western road, and a charter for the purpose could readily be obtained from the company.

Mr. Loomis eloquently argued in favor of the advantages offered us in the west, as superior to those of the east, by Baltimore. His speech was characterized by such great good sense, and a ready perception of all the points in the case, that it made a very marked impression on the meeting.

After a long discussion as to the mode in which the overtures of the Baltimore and Ohio company should be regarded, the proposition of Dr. E. D. Gazzam was adopted

for the appointment of a committee to take the various propositions into consideration, and report to an adjourned meeting of the stockholders, to be held at Philo Hall this afternoon at 3 o'clock.

Messrs. Gazzam, Bakewell, Robinson, Ebbs, and Darsie were appointed on the committee.

**Fifteenth Annual Report of the Boston and Worcester Railroad Corporation.**  
*To the Honorable Senate and House of Representatives:*

The Directors of the Boston and Worcester railroad respectfully submit the Fifteenth Annual report of their proceedings, in compliance with the requisitions of their charter.

The business of the road has been successfully prosecuted during the year without interruption and without serious accident. There has been a large increase in the transportation of passengers and merchandise, compared with that of the most productive of the preceding years. Five passenger trains and two or more freight trains have run in each direction daily, except on Sundays, over the whole road, and an equal number of additional passenger trains have run, over the part of the road which terminates in the city. The frequency, regularity and rapidity of the trains, with their safety and convenience and the moderate rate of charge for passage and freight, are such as to command a large amount of public patronage, and at the same time, decided expressions of the public approbation. The power obtained from this, and other works of a similar character, of rapid and easy communication from the centre to the extremities of the State, has become one of the main elements of the public prosperity.

The directors, as trustees both for the public and for the large number of the stockholders of this corporation, on the occasion of presenting their annual statement exhibiting the successful operations of the road, feel justified in thus alluding to its public benefits, for the purpose of reminding the Legislature that, while the projectors of these very expensive works have realized their hope of a fair income from the capital invested in them, which constituted one of the motives for soliciting the authority of the Legislature to undertake them, so also the expectation of benefit to the public, in promoting, in various ways, the welfare of the Commonwealth, which constituted another and stronger motive, has been even more signally realized. The corporations established for these purposes, with a liberal grant of powers from the Legislature, have accomplished all, and more than all, which they promised for the public benefit, as the inducements for the grant of these powers.

This corporation is authorized, by an act in addition to its charter, for the greater accommodation of persons residing near the route of their railroad, to construct branch railroads to any part of the towns thro' which the main road passes, or of the towns adjoining. In pursuance of this authority, the corporation, in the year 1838, in compliance with the request of the inhabitants of Milbury,

constructed a branch railroad, which is a little more than three miles in length, leading to that town.

In the year 1845, on the application of the inhabitants of Saxonville, the directors commenced the construction of a branch, four miles in length, leading from Natick to that place. This branch was completed in the following year, and it has been since in regular use. In the year which has just passed, on the application of the inhabitants of Newton Lower Falls, the directors caused a branch railroad to be constructed, leading along the valley of Charles river to that place, which has been recently completed, and regular passenger trains now run between Boston and the Lower Falls village.

Early in the same year, the directors received an urgent application, from a large number of the inhabitants of Holliston, Milford, and some of the adjoining towns, to build a branch railroad leading to those towns. The length of the route here proposed is about 12 miles, and the heavy cost which it will involve demanded of the directors a deliberate consideration of the proposition, before they decided upon it. On full examination of the question, having ascertained that a favorable route could be obtained—that a large and thriving population were in want of the accommodation, and that they came directly within the scope of the provision in the additional act above referred to—finding, also, that the branch might be advantageously extended to the towns of Mendon, Blackstone and Woonsocket, in case the Legislature should authorize it to be done—they resolved on undertaking it. A branch road was accordingly definitely located, passing through a part of the towns of Sherburne and Ashland, and the centre of Holliston, and terminating near the centre of Milford. All parts of the line are now under contract for grading and masonry, and it is intended that the road shall be completed within the ensuing summer. Although there is no reason to anticipate that the increased business which will be afforded by the branch will, for the present, afford a full remuneration for the additional expenditure required, it was believed by the directors, to be for the interest of the corporation, to give this proof of its disposition to extend the benefits of their road to all persons who can reasonably demand accommodation from it, within the limits of the authority granted to them.

At the period of the commencement of the Saxonville branch, the directors were requested, by the inhabitants of the central village of Framingham, to extend the branch to that place. After a careful examination of the question, with the aid of the necessary surveys, they declined it, on the ground that, in their opinion, the inhabitants of the central village might be more effectually accommodated, by means of a shorter and less expensive branch, leading directly from the convenient and central station of the main road, at South Framingham, where it would connect with the trains running in each direction; than by the proposed circuitous branch leading from Natick through Saxonville, and



over ground less favorable. They, therefore, expressed a willingness to build the direct branch, in case it should be requested, but declined building the other. No such request has yet been made; but, on a recent application of a number of the inhabitants of the village, the question of the best mode of affording them the accommodation which they require, is now undergoing a revision, by the aid of further surveys, with a view to a decision upon it early in the ensuing season.

With a view to the adoption of a more convenient mode of uniting this road, at Worcester, with the Western, and Norwich and Worcester railroads, and also of establishing a connection between each of these roads and the Providence and Worcester, as well as the Nashua and Worcester roads, which are now in progress of construction, at a central point in the town of Worcester, by means of stations in the vicinity of one another, or by one station for the accommodation of the five railroads, the directors in pursuance of an informal understanding, between them and the directors of each of those roads, have taken the initiatory measures for the accomplishment of this object. To facilitate the execution of this purpose, the inhabitants of Worcester, by a resolution passed with great unanimity in town meeting, have authorized a material alteration of two of the streets, in a central part of the town, near the present passenger station of this and the Norwich and Worcester roads. The directors hope, in return for this obliging compliance of the town with their request, to be able to carry into effect an arrangement, which will as effectually promote the public convenience, as it will the advantage of the several corporations whose roads will thus be united at a single point, and in a central and the best adapted part of the town. For accomplishing this object in the manner proposed, it will be necessary to erect a new building, of sufficient dimensions to contain, in distinct apartments, the local trains of the several roads, as well as the trains which may pass through the principal routes, and also to afford suitable accommodations for passengers leaving or about to enter the respective trains.—For the completion of this arrangement, the concurrence and co-operation of the five corporations will, of course, be required.

Since the date of the last annual report, an agreement has been made, with the directors of the Western railroad corporation, for the adjustment of all matters in controversy between the two corporations, which were referred to, in that and in former annual reports. As a condition of this agreement, the petition of that corporation, which was presented to the Legislature at its last session, praying for its interposition in the support of certain claims resisted by this corporation, and also a petition of the said corporation, which was pending in the Supreme Judicial Court, for the appointment of commissioners to determine rates of compensation for the transportation of passengers and freight, were both withdrawn. The agreement is founded on the principle, that the two corporations possess equal powers and rights under their re-

spective charters, and it adopts regulations for the conducting of the joint business, and rules for the partition of the passage fares and freight, earned on the joint line of transportation, which were mutually satisfactory to the directors of the two roads, the latter taking effect from the commencement of the fiscal year then begun. Under these rules and regulations, the joint business has been successfully conducted during the past year; and it is believed that they have had the effect not only of sustaining all the just rights, but of promoting, in a very satisfactory manner, the interests of both corporations.

The directors have persevered in the purpose of substituting for the old rail of the first track, which was laid down in 1833, 1834 and 1835, and was of a weight of 40 lbs. per yard, a much stronger rail, weighing 63 lbs. per yard, and corresponding, in weight and form, with that of which the second track of this road is constructed. This measure had become necessary, or highly expedient, in consequence of the great weight of the engines and cars lately introduced upon the road.—The passenger and freight engines now principally used, and adapted to the dimensions of the trains now transported, are of nearly double the weight, of those which were required on the first opening of the road. At an early period of the last season, 13 miles of the improved track had been laid, and, during the subsequent part of the year 1100 tons of rails—a quantity sufficient for 11 additional miles of track—were imported, for the purpose of being immediately laid down. The establishment of the new tariff of duties, by which a reduction was made of about \$10 a ton in the duty on railroad iron entered after the 1st of December, offered a sufficient inducement for making a deposit of the iron in the custom house stores, until after that date.

This caused a delay in the laying down of these rails; but the necessary preparation having been previously made, by the removal of the old rails and the supply of gravel for the improvement of the road bed where necessary, the work has been prosecuted, under some disadvantages, during the winter. This work is not yet finished. An additional quantity of 900 tons of heavy rails has been contracted for in England, to be delivered early in the next summer. This will be sufficient, with what is now on hand, to complete the improved track, with the heavy rails, for a length of 33 miles, leaving but 11 or 12 miles to be completed in another year. The old rail is of sufficient strength for light engines and loads, and is well adapted for the branch roads, on which heavy engines are not required.

The subjoined statement contains the items of information required by law, to be embraced in the annual return, so far as they are exhibited by the books of the corporation. The details of expenditure in the construction and equipment of the road, as charged in the books, have not been entered under so many distinct heads of account as are specified in the recent act of the Legislature. The cost is therefore stated, in the annexed schedule,

under a classification conforming with that under which the books of account have been kept.

In the returns also of current expenses, a slight departure from the form prescribed in the printed schedule has been rendered necessary, from the manner in which these expenditures are charged in the books. Under the several heads of repairs, whether of road bridges, engines or cars, are entered all expenditures not only for repairs strictly speaking, but for new constructions, improvements, or additions; unless the additions so made exceed in value the deterioration of the property under that head, beyond the amount which represents it in the general stock; in which case, the excess charged to the appropriate head of the general account, and the residue to repairs. For this purpose, an estimate is made, as nearly as is practicable, before the closing of each year's accounts, of the property under each head of account, and of the amount of depreciation beyond the repairs, in comparison with the additions. The several heads of current expenditures for repairs, therefore, in all cases, include additions to the stock under the above limitation.

As the items embraced in the prescribed form of return do not embrace all the descriptions of property of the corporation, so as to exhibit the balance of its assets and liabilities, the following recapitulation, embracing the additional items, is subjoined, viz:—

Original cost of road and equipment, with that of additions when the amt exceeds in value that of depreciation, as given in the annexed schedule.	\$3,485,232 43
Cash, notes receivable, shares in stock of the corporation, stock acct, including rails not laid down, fuel, oil, stock of car building, machine, and repair shops, etc.	338,697 60
	3,823,930 05
<b>Liabilities, viz:</b>	
Capital stock	3,500,000 00
Debts, including divid's. unclaimed, Dec. 1, '46.	154,204 25
	3,654,204 25

Balance of net profits undivided, Dec. 1 1846.	169,725 80
Dividend of 4 per cent. subsequently declared payable Jan. 1, 1847.	140,000 00
Surplus not divided	29,722 86

With these explanations, the undersigned hereto subjoin the return required by law, which is respectfully submitted.

Nathan Hale, Daniel Denny, Eliph. Williams, Nathaniel Hammond, Benjamin F. White, John Hathaway, Abraham T. Lowe, Samuel Greele.

Boston, Jan. 26, 1847.

SUFFOLK ss. Boston, Jan. 29th, 1847.—Then personally appeared the above-named Nathan Hale, Eliphalet Williams, Nathaniel Hammond, Benjamin F. White, John Hathaway, Abraham T. Lowe and Samuel Greele, and severally made oath that the foregoing report, by them subscribed, is true, to the best of their knowledge and belief. Before me,

GEORGE BENIS,  
Justice of the Peace.

## Massachusetts Annual Railroad Reports.

Return of the Boston and Worcester Railroad, under the Act of April 16, 1846.

Capital stock.....	\$3,500,000
Increase of capital since last report.....	600,000
Capital paid in, per last report.....	2,900,000
Capital paid in since last report.....	600,000
Total amount of capital stock paid in.....	3,500,000
Funded debt, per last report.....	None.
Funded debt paid since last report.....	None.
Funded debt, increase of, since last report.....	None.
Total present amount of funded debt.....	None.
Floating debt, per last report.....	
Floating debt paid since last report.....	
Floating debt, increase of, since last report.....	
Total present amount of floating debt.....	
Total present amount of funded and floating debt, (including dividends unclaimed).....	154,904 25
Average rate of interest per annum on do.....	Six per cent.
COST OF ROAD AND EQUIPMENT.	
For graduation and masonry, per last report.....	
For graduation and masonry, paid during the year.....	
Total amount expended for graduation and masonry.....	
For bridges, per last report.....	
For bridges, paid during the past year.....	
Total amount expended for bridges.....	
For superstructure, including iron, per last report.....	
For superstructure, including iron, paid during the past year.....	
Total amount expended for superstructure, including iron.....	
For stations, buildings and fixtures, as per last report.....	
For stations, buildings and fixtures, paid during the past year.....	
Total amount expended for stations, buildings and fixtures.....	
For land, land-damages and fences, per last report.....	
For land, land-damages and fences, paid during the past year.....	
Total amount expended for land, land-damages and fences.....	
For locomotives, per last report.....	
For locomotives, paid during the past year.....	
Total amount expended for locomotives.....	194,396 69
For passenger and baggage cars, per last report.....	
For passenger and baggage cars, paid during the past year.....	
Total amount expended for passenger and baggage cars.....	
For merchandise cars, per last report.....	
For merchandise cars, paid during the past year.....	
Total amount expended for merchandise cars.....	
For engineering and other expenses, per last report.....	
For engineering and other expenses, paid during the past year.....	
Total amount expended for engineering and other expenses.....	
Total cost of road and equipment.....	\$3,485,233 43
CHARACTERISTICS OF ROAD.	
Length of road.....	44½ miles.
Length of single track.....	44½ miles.
Length of double track.....	44½ miles.
Length of branches owned by the company, stating whether they have a single or double track:	
[Millbury 3 1-5, Saxonville 4, Newton 14 miles].....	8 9-20 miles.
Weight of rail per yard in main road.....	40 to 64 pounds.
Weight of rail per yard in branch roads.....	40 pounds.
Maximum grade, with its length in main road.....	30 feet for 14½ miles.
Maximum grade, with its length in branch roads.....	30 feet for 2½ miles.
Total rise and fall in main road.....	702 feet.
Total rise and fall in branch roads:	
[Millbury 62, Saxonville 63, Newton 15 feet].....	140 feet.
Shortest radius of curvature, with length of curve in main road.....	600 feet for 900 feet.
Shortest radius of curvature, with length of curve in branch roads.....	600 feet for 900 feet.
Total degrees of curvature in main road.....	1975 degrees.
Total degrees of curvature in branch roads:	
[Millbury 166, Saxonville 336, Newton 75 degrees].....	577 degrees.
Total length of straight line in main road.....	25-827 miles.
Total length of straight lines in branches:	
[Millbury 14, Saxonville 2, Newton 3-5 miles].....	4 7-30 miles.
Aggregate length of trestle bridges.....	350 feet.
Whole length of road unfinished on both sides.....	None.
DOINGS DURING THE YEAR.	
Miles run by passenger trains.....	195,692
Miles run by freight trains.....	93,008
Miles run by other trains.....	6,283
Total miles run.....	294,983

Number of passengers carried in the cars.....	470,319
Number of passengers carried one mile.....	12,766,522
Number of tons of merchandise carried in the cars.....	179,325
Number of tons of merchandise carried one mile.....	6,941,291
Number of passengers carried one mile, to and from other roads.....	6,485,873
Number of tons carried one mile, to and from other roads.....	5,171,661
Average rate of speed adopted for passenger trains, including stops.....	29 miles per hour.
Average rate of speed adopted for freight trains, including stops.....	9 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	2,565,301 tons, of 2000 lbs.
Estimated weight of merchandise trains, including engine and tender, but not including freight, hauled one mile.....	11,198,291 tons, do.
EXPENDITURES FOR WORKING THE ROAD.	
For repairs of road, maintenance of way, exclusive of wooden trestle bridges and renewals of iron.....	\$22,814 58
For repairs of trestle bridges.....	9,652 74
For renewals of iron, including laying down.....	12,132 00
For wages of switch-men, gate-keepers and flag-men.....	2,433 05
For removing ice and snow.....	411 95
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....	In general account of repairs.
Total for maintenance of way.....	
MOTIVE POWER.	
For repairs of locomotives.....	\$31,534 85
For new locomotives to cover depreciation.....	
For repairs of passenger cars.....	16,840 33
For new passenger cars to cover depreciation.....	
For repairs of merchandise cars.....	18,887 50
For new merchandise cars to cover depreciation.....	
For repairs of gravel and other cars.....	Small, and included in [repairs.
Total for maintenance of motive power.....	
MISCELLANEOUS.	
For fuel and oil, [fuel, \$50,226 93; oil, \$5,884 93].....	\$56,111 86
For salaries, wages and incidental expenses, chargeable to passenger department.....	39,505 41
For salaries, wages and incidental expenses, chargeable to freight department.....	45,879 63
For gratuities and damages.....	3,417 73
For taxes and insurance, [taxes, \$4,041 17; insurance, \$1,403 49].....	5,441 66
For ferries.....	
For repairs of station building, aqueducts, fixtures, furniture.....	3,986 10
For interest.....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company.....	None.
For amount paid other companies as rent for use of their roads, specifying each company.....	None.
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	15,423 66
	283,876 11
INCOME DURING THE YEAR.	
For Passengers:	
1. On the main road exclusively, including branch owned by company.....	279,792 50
2. To and from other roads, specifying what.....	None.
For Freight:	
1. On main road and branches owned by company.....	260,163 42
2. To and from other connecting roads.....	None.
[U. S. Mails, \$1,152 91. Rents, \$6,647 02. Other Income, \$6,954 52].....	14,754 45
Total income.....	554,712 46
Net earnings after deducting expenses.....	270,836 35
DIVIDENDS.	
[Four per cent., paid July, 1846.....]	\$120,000
[Four per cent., payable Jan., 1847.....]	140,000
	260,000 00
Surplus not divided.....	10,839 95
Surplus last year.....	18,889 45
Total surplus.....	29,729 80
ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:	
Road and bridges.....	
Buildings.....	
Engines and cars.....	



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, April 10, 1847.

Boston and Worcester Railroad.

The Fifteenth Annual Report of this road will be found in this number. In its details it is in the prescribed form required by the Legislature. We shall continue to publish these reports, in their new form, that they may hereafter be referred to for comparison.

Baltimore and Ohio Railroad Report.

We give, in this number, the remainder of this report, commenced in our last—and we give it in full, with all the tables—relating to the business of the year—which will be sure to arrest the attention of professional readers—especially the statement in relation to the comparative cost of working the road with a *plate*, or an *edge*, rail; and also statement C, or the detail for 1846. We shall give, in the next number, statement D—or the statement in detail for 1845—similar to that of D, for 1846—which was omitted last year.

The Late Storm.

Since our last number, a very serious storm has occurred, which occasioned much damage in New York, Philadelphia, Baltimore, etc. The magnetic telegraph lines, it appears, were extensively injured. Between Wilmington and thence eastward towards New York, the posts were blown down and the wires broken in various places. The line to Lancaster, Pa., was also much injured. The repairs of the several lines were commenced with energy, but several days elapsed before the communications were restored.

The injuries upon the line between Philadelphia and Baltimore, especially, were very considerable—and the "lightning talk" was broken off entirely for some days. In the mean time, important news from the army was received in Washington, which was communicated northward by the regular mails.

Table of Railroads in the United States.  
Correction of its Errors.

We are obliged to the writer of the following letter, for his early attention to our request for accurate information in relation to, or for the correction of, errors in our Table of American Railroads; and we shall esteem it a special favor if other gentlemen, having the means of correcting errors in other roads, will enable us, at an early day to make this table as correct as possible. It requires but little labor on the part of each to enable us to make it a document of great value to those interested in railroads. Yet, to make it accurate, up to the *present time*, it is important that we should be enabled to correct errors resulting from the lack of documents of a *recent date* in relation to some of the roads. We propose soon to issue another edition of the table—or at least as soon as we can obtain full returns.

"KEENE, March 25, 1847.

"Dear Sir—In your Table of 'Railroads in the United States,' I observe certain errors:

"15. The 'Cheshire' from 'State Line, Fitzwilliam, N. H.' This should be from Ashburnham, Mass., to Bellows' Falls. Length 53 miles, instead of 45—weight of rail 60 lbs.—T pattern.

"Length of Vermont and Massachusetts is 69 miles, instead of 65.

"Central road extends from Windsor, Vt. to Burlington, 117 miles.

"A new road should be added—the 'Sullivan'—extending from Cheshire, at Bellows' Falls, to Central at Windsor—length 25 miles.

"Respectfully yours,  
T. M. EDWARDS."

Railroads, Canals, etc.

The Northern New Hampshire railroad has been open for use to Franklin, a distance of 18 miles from Concord, during the last two months. It is expected that the cars will be running a further distance of 15 miles to North Andover by July next. It is expected that in the course of the year the whole road will be completed to the Connecticut river, and that within the same period the Central road in Vermont will be completed, from the Connecticut river to Montpelier. The receipts of income on the 18 miles of railroad already open, have exceeded \$8000 in the last two months, and the net receipts, after deducting expenses, are equal to a rate of 8½ per cent. per annum.

The Journal of Commerce states that the \$3,000,000 subscription to the capital stock of the Hudson River railroad having been completed on the 22d ult., the Directors yesterday made choice of Wm. Chamberlain for President; James Boorman, Vice President, and Treasurer pro tem.; J. M. Hopkins, Secretary; J. B. Jervis, Chief Engineer, and Fortune C. White, Land Commissioner. These are all very good appointments.

The New York correspondent of the Washington Union writes that, "the Directors of the Hudson River railroad are pushing forward the works with the best spirit. Two corps of engineers were to take the field on Saturday—one on this island, and the other in Westchester county, from the southern line of the county advancing northward. In a very few days a third corps will be at work in the Highlands. The road will go on as fast as possible, and its friends hope will be well nigh finished before its gainsayers are done croaking that it will never be commenced. Push on—room enough for all! No fear that we shall get too many railroads from this city."

The Knickerbocker will take her place at once upon the Norwich and Worcester line to Boston.—The Worcester will haul off to repair, and afterward, with the Knickerbocker, will form the summer line to Boston. These boats are both too well known to the public to require any commendation.

The Directors of the Terre Haute and Richmond railroad company had their first meeting on the 4th ult. at Terre Haute. The Board have determined to open books for the subscription of stock at an early day in April, at Terre Haute, Greencastle, Indianapolis and Richmond; and at St. Louis, Cincinnati, and other cities, as soon as the convention, which is to assemble in May next at Indianapolis, shall determine on the best plan of operations. This road across the State of Indiana, is intended as a link in the great chain of railway from the Atlantic by way of Baltimore and Philadelphia, to the Missouri river at St. Louis.

A mass meeting of the citizens of Penobscot,

Somerset, and Piscataque, was held at Dexter, Me., in reference to a railroad from the Kennebec to Bangor. Resolutions were adopted, declaring that in the opinion of the meeting, the time had come when a railroad from the Kennebec river to Bangor can be accomplished, and that the citizens between those rivers "can and will subscribe to the stock of the Penobscot and Kennebec railroad, the sum of \$200,000."

The Railroad Committee of the Massachusetts Legislature have reported a bill authorizing the Fitchburg railroad company, to extend their road into Boston and construct a depot on that side of the bridge. The authorities of the city, remarks the Traveller, as is known, remonstrated against this, chiefly from apprehension of danger to passengers over the Warren bridge, which bridge it is designed to use for the track. We understand, however, that it is contemplated to construct the railway so distinct from the bridge as to remove all reasonable grounds of apprehension. It is not only just that the Fitchburg railroad should enjoy equal advantages with the other railroad in this respect, but it is very desirable, as a matter of accommodation and convenience to travellers to and from the city, that the depot of that road should be located within the city. Boston can well afford to be liberal in extending accommodations to railroad companies. The bill in favor of the proposed depot passed its third reading unanimously, in the Senate on Wednesday.

We learn from the Baltimore American, that large numbers of boats are on their way down the Pennsylvania and Tide Water canals, laden with produce for the Baltimore market. The chain of works is said to be in good order, and a large business is anticipated.

The Tide Water canal is now fairly in operation, boats having arrived from Columbia. The Harre de Grace boats were loaded with lumber, and left for Baltimore in tow of the steamboat Wolcott.

The navigation of the Pennsylvania canal has been delayed by the unfinished state of a new aqueduct at Conewango Falls. The whole line is now in operation we learn, and a large business may be expected.

The Susquehanna river has been navigable for arks and rafts for some days, and a quantity of lumber has arrived at Port Deposit.

The Pottsville Miners' Journal, of Saturday, says, "the quantity of coal sent this week is 20,436-10 tons, making the total quantity sent this season 195,859-03 tons by railroad.

The subscriptions to the stock of the Pennsylvania Central railroad, amount to \$3,037,650 or 60,753 shares.

The railway share market closed, in Boston, on Saturday, at the following quotations:

		Offered.	Asked.
Lowell Railroad par \$500.....		580	590
Nashua do. 100.....		1284	130
Concord do. 50.....		684	69
Fitchburg do. 100.....		123	134
Worcester do. 100.....		116	117
Western do. 100.....		1004	101
Maine do. 100.....		1094	1104
Providence do. 100.....		104	1044
Eastern do. 100.....		107	1074
Portland do. 100.....		1004	1014
Old Colony do. 100.....		984	99

The Courier adds—These solid securities are like gold dust in the market, and are always sure of commanding the needful, on hypothecation, with a reasonable margin between the amount loaned and the current price of the stock. Railroad property, of the dividend class, is the best endorser which a business man can possibly have.

About \$75,000 have been subscribed on the Cape for the branch railroad to Cape Cod.

The feeling in favor of railroads in Maine is still on the advance; and meetings are called in every section of that State, having for their object, the extension of railroad facilities. We are glad to see that there is no disposition to flag, in regard to the projects already under way there—while new proposals, and new routes are constantly being pressed upon the consideration of capitalists in that region.

#### The Telegraph System.

The late storms seem to have produced havoc among the lines of telegraph. In every direction they have been thrown down, and in at least one case, where they have been constructed along lines of railroads, a serious accident has been occasioned to a train, attended, we believe, with loss of life, in consequence of the locomotive having been entangled in the wires of the telegraph, which had been broken, and thrown down by the gale.

These accidents, coupled with the frauds previously perpetrated on the public, by the cutting of the wires, on the arrival of steamers from England, show something wrong in the present system, and a few suggestions on the subject, it seems to us, may not be out of place.

It appears to us, that the plan of the agent of Mr. Morse, and his associates, (Mr. Amos Kendall) for deriving the maximum profit, from the improvement, is calculated to lead to a most imperfect system. It is generally understood that Mr. Kendall refuses to sell the patent on any route, or to allow its use on any terms, other than on the condition of the patentees, having as a consideration for the use of the patent, *one-half* the stock, or property, in any line on which it may be used. The exaction of this enormous *bonus* deters prudent men, who perceive that it must necessarily lead to other plans of telegraph being introduced, from embarking capital to any extent in lines so organized. As a consequence, the lines are, we understand, in some cases, undertaken by persons of very limited means, who are induced to subscribe by contractors engaged to raise the subscriptions, on condition of being employed to put up the telegraphs at a specified sum per mile, usually much above the fair value of the work.—The temptation is, of course, a very great one to the contractor to expend as little as possible, and to put up these lines in the cheapest and frailest manner—and thus, while the capital stock issued for each of these lines, under this system of double *bonus*, is about *fourfold* their actual cost—the lines themselves are of the most imperfect character. In some cases, where leave has been had of the railroad companies, they are taken along lines of railroad; in other cases along common roads; but the permission, when they are taken along railroads, has been usually given by the railroad companies subject, at any time, to be revoked on short notice, and we do not hear of any instance in which arrangements have been made with the railroad companies for the prompt repair of the telegraphs when out of order, or for giving to the lines of telegraph the benefit of the police of the railroad companies, which might be so invaluable, for their protection.

But a further objection to the whole system is, that imperfect as it is, it has become a *monopoly* of the closest kind, and threatens to be one of a *monstrous* character. Some two or three, or a small number of individuals, of whom Mr. Kendall is the co-partner and agent, owning, under this system, *one-half* the stock, have the absolute control of all the telegraphs in the United States, with the power of tax-

ing, to any extent, the transmission of intelligence, *however imperfectly the duty may be performed.*

We have a high opinion of the character of Professor Morse, and of the value of his improvement, and would be glad to see the most liberal reward accrue to him from his invention, but we are satisfied he has been ill-advised as to the best mode of using his patent, and that he is not on the plan to make it most valuable to himself or the public.

No one ever heard before of an inventor refusing to sell his patent, and requiring as the consideration for its use, not only half the profits to accrue from it during the existence of the patent, but half the property on which it was to be applied. It is as if Oliver Evans had exacted as a condition of the use of patent mill gleaning, half the estate in mills in the United States; or as if the inventor of a patent plough should require as a condition of using it, the conveyance of an undivided moiety of the farms on which it might be employed, and of the profits of its cultivation.

As a necessary consequence, it becomes of great moment to the public—if Professor Morse and his associates continue to refuse to sell the patent right to his improvement, that some other plan of telegraph should be introduced, and we have little doubt, with the ingenuity and science directed to the subject, that other plans must, ere long, be introduced, as valuable, if not more so than that of Mr. Morse.

We would make, under these circumstances, a suggestion to the railroad companies throughout the country, in relation to this matter. Their interest is, in a measure, connected with it, and they are, in our opinion, the parties who can make the system most useful to the public, and most profitable to the proprietors of the right.

It is, it seems to us, the true policy of the railroad companies, and also due to the public, that they should not aid in fastening the present, or any other similar monopoly upon the country, by giving to any telegraph company a right to put up its posts and wires on its line; but that they should construct and keep in order, when adequate inducements may be offered, by any telegraph company, a line of posts, with one or more wires, reserving the right to make use of the posts hereafter for other lines or plans of telegraph; and to place on them as many wires as the business of the country may require. The advantage of this system is, that while the railroad tracks would be encumbered with only a single set of posts, and the risk of accidents from them be proportionably diminished, an opening would be made for the largest possible competition hereafter, in the conveyance of intelligence, whether on one or many plans. The public and the railroad companies, would both gain by the arrangement. The former in having better telegraphs, guarded, and kept in better order, and operated by competing companies, the latter in profits which they would derive from the rent of wires to, or a share in the operations of, several companies instead of one, while they would have only the expense of keeping in order single lines of posts and wires, an object obviously much better effected by the railroad companies than by any other agency.

If we mistake not, on some such plan the telegraph system—which is now a subject of great complaint in many cases—may be made a source of great convenience and value to the public, and of handsome profit, to railroad companies. Under such a system, it seems to us, we should have better telegraphs, kept constantly in working order, and abundant wires for the proper dispatch of intelligence, while the agents and numerous hands along the lines of

railroads, would protect the common posts and wires of the different lines of telegraph (and necessarily all equally) against injury. As it is, while the charges are now so high as to prevent the use of the telegraphs, except on business of great importance, they are made the instruments of frauds on the public, are frequently out of order, inadequately provided with wires, and, instead of being constantly watched, and repaired, in case of accident, in a fraction of an hour, as they would be, if owned, and kept in order by the railroad companies—days, and sometimes nearly a week elapses, before the place where comparatively a slight injury has occurred, is ascertained and repaired.

We throw out these suggestions, in the hope that the subject—one of vast and growing importance—may receive proper attention, before the present monopolizing system shall have gained a foothold so firmly, that others equally—perhaps more—deserving, may not have a fair chance, and, also, that the public may have the benefit of fair competition in the use of the wires, while all parties will have the advantage of the unceasing vigilance of the numerous persons employed by railroad companies in keeping them in constant working order. We shall refer to this subject again.

#### Railroad from Philadelphia to Pittsburgh.

We have repeatedly been questioned of late, touching our opinion in reference to a railroad from this city to Pittsburgh, and the inquiries have been made with regard to our views of the route proposed by the friends of the Great Central road, as compared with that by way of the West Branch, hence to the Ohio river. By reference to back numbers of the "Journal," our opinions upon this question will be found freely and candidly expressed; as we have endeavored, in times past, to give our views, generally, upon this, as upon all other questions which we have conceived to come legitimately within the scope of our province, in an unprejudiced and impartial manner; and have at all times, to say the least, spoken without any self-interestedness.

We have, however, differed somewhat from many others, from the outset, in relation to the route which should be adopted for a railroad from Philadelphia to Pittsburgh; believing that it should be laid through a region—if such an one can be found, equally favorable—not already accommodated with an easy and cheap means of transportation; and we still see no reason to change our opinion on the subject—as it is a principle with us to advocate measures which will give the greatest amount of accommodation to the greatest number of people, for the least possible judicious investment of capital. The entertainment of these views, does not, however, prevent us from taking a deep and abiding interest in the early construction of the "Central" road.

Of the entire feasibility of the Central route, we do not entertain a doubt—any more than we do of the right of those who furnish the capital to accomplish the object, to designate the general route to be pursued.

The present favorable aspect of affairs in regard to this route, and the well-known reputation of those who have lately been elected to manage its concerns, is, we think, sufficient guarantee that the "Central" road is in a fair way, and will be pushed forward as earnestly as is possible; and therefore any speculations as to the ultimate general result of the undertaking, are unnecessary. The names of the gentlemen selected to conduct its affairs for the present year, is ample warrant of judicious management; and we entertain no doubt, if the Board of Directors is as fortunate in the selection of its Engineers, as the Stockholders have been in their



choice of officers, that a good road will be soon be commenced, and completed at an early day.

Our conviction is, then—in reference to the *Central* route—that at no time since the subject was first broached, has the prospect been so good as it now seems, for its construction. The scheme has been before the public a sufficient length of time, for all its advantages to be brought out and thoroughly canvassed—and the few objections which have, from time to time, been urged against it, have also been leisurely and carefully considered. Capitalists have been found to subscribe liberally and promptly for the stock—the people of this city, through their representatives, have sanctioned the enterprise, and the *Central road will be built; and time will show whether we judge rightly in the prediction that it will prove a highly profitable investment to its stockholders, and a means of communication from the Ohio river to the Atlantic—such as does not now exist in this country—all things considered.* To the city of Philadelphia, more especially, we believe it will prove a source of benefit, now incalculable; and on its completion we shall witness an increase in the commercial prosperity of this city and state, hitherto unprecedented in our local history. Thus much, briefly, for the *Central route*.

In these remarks in relation to the *Central* road, we do not in the least intend to change our ground in relation to the importance of a road up the "*West Branch*," and to the lake at Erie, because we deem it of the utmost importance to this city. On the contrary, we are fully convinced that the completion of the *Central* road will ensure the construction of the *Northern*; and we would therefore recommend to its friends the propriety of a steady, untiring effort to push it forward, without regard to the *Central* line—bearing in mind the fact that the citizens of Philadelphia have decided in relation to that work, and that they are able, and will soon be willing, to construct the *Northern* line also.

There are many careful, cautious business men, we are well aware, who honestly doubt the construction of even one railroad to the western waters, and they are, in their wisdom, sure that, if it should be built, it will "never pay"—that is, it will never yield a fair interest on the investment of capital—while we are as well convinced that it will be with great difficulty that we can construct avenues of communication fast enough to accommodate the trade of the west; and that capital thus invested will not only contribute largely to the increase in the value of property, along its line, as well as in this city, but also pay a good interest to the holder of the stock.

A glance at the statistics of exports from the west and northwest, during the last three years, to the Atlantic cities, by way of the lakes, and *via* New Orleans—will convince the most skeptical of the soundness of this general position. The immense quantities of pork, flour, corn, wheat, etc., conveyed annually to Baltimore, Philadelphia, New York and Boston, from the western States (down the Mississippi river) for home consumption, and for foreign shipment, is almost incredible. The large amount of breadstuffs, which reach tide-water, from the country bordering upon the lakes—down the Hudson and over the *Western* railroad, is another feature for consideration.

Our readers are aware of the fact, no doubt, that during the past season, it has been utterly out of the power, and beyond the capacities of the *Western* road, with all its immense amount of machinery, and merchandize accommodations, to transport produce as rapidly as was desired by shippers; and repeatedly, during the last three or four months, the

storehouses along the line have been crammed to their utmost capacities, with produce which, for the time being, it was impossible to forward, in consequence of the press of business. This was not originally calculated upon, nor is it now believed, by those who are determined to be skeptical, that *this trade must continue*—and that, instead of diminishing, it will increase in years to come! As sure as we now live to witness this extraordinary prosperity in our internal affairs, so sure will this traffic advance, and in an increased ratio, too! Such, then, being the fair presumption, why talk of the probability that two channels through the great "*Keystone*" State, for the accommodation and partial transport of this produce, cannot exist! The feeling is altogether too narrow—and is unworthy of our consideration, in these days of national improvements, and national prosperity!

We have said it is our purpose and wish to lend our humble aid in favor of both these great projects, and it is the design of the Railroad Journal to support, always, the plans of all sections of the country in internal improvements. We have no disposition to prefer one for another, or to bring one into disparagement at another's expense. We, therefore, repeat, that while we earnestly hope to see the energies of capitalists and business men put forward to urge on the progress of the *Central* road to completion, we shall be most happy to see the prospects of the *Northern* route brighten. The road as proposed along the *West Branch*, passes through a most fertile and beautiful country, rich in agricultural and mineral wealth. A part of its course will lie through a section of the State which is thickly populated, and it will be sufficiently distant from the line of the *Central* road, to ensure it a good business, at all seasons of the year.

Its terminus, at the Lake, will be its most important feature, and its transportation business could not be otherwise than productive of immense profit. The local business and the local travel, too, upon this route, must necessarily be very great—while the produce of the Lake country, and the northwest, would find its way (in a very considerable proportion) to the east—through such a channel. That a road, "by way of the *West Branch*," would prove a highly profitable undertaking, and that it must be a successful one, in all respects—none will question. But that it will materially interfere with the *Central*, or that with the other—we cannot believe. To the friends of the *Northern* route, then, we say most cordially—*go on with your work*—and let us have such a road as the wealth and abilities of the city and country can give us. There is room for both—there will be ample business for both—their interests need in no wise conflict—there is need of both—and now is the time to press the enterprise forward. With two such routes as these through the State, no fears need be entertained for the result—nor can any rival route be brought to bear, injuriously, upon the interests of these. Competition increases business. Increased facilities tend inevitably to enhance commercial traffic—and we could readily point to scores of instances, both in this country and in Europe, to sustain this proposition.

Let us have the "*Central*" road, then—and, by all means, let us have the "*Northern*." Let the friends of each look to the interests of each—and, adopting the broad principle that there is "room enough in this world for us all"—let them strain every energy to consummate both plans, and thus place the State of Pennsylvania in front of all competitors as regards her great internal improvements.

Baltimore and Ohio Railroad.

(Continued from page 216.)

Dr. STATEMENT A.	
Stock in the Washington branch road	\$1,032,600 00
Cost of road to Harper's Ferry, including real estate and depots, locomotives, passenger and burden cars, etc.	4,000,000 00
Cost of road west of Harper's Ferry	3,623,606 28
Coal trade, for amount due on that account	101,494 78
Sterling bonds in the hands of Messrs. Baring, Brothers & Co., of London	3,181,005 11
City of Baltimore six per cent. stock on hand	20,096 59
Sinking fund, for the redemption of the million loan	55,900 00
Invalid fund, for amount due by that account	196 28
New York and Maryland Iron and Coal company, due by them	13,027 59
Stock in the Pittsburgh and Connellsville railroad co. for instalment paid	1,750 00
Cash in the hands of officers	15,094 63
Cash on hand	58,868 71
	\$12,104,330 07

Cr.	
Loan at six per cent.	\$1,000,000 00
Loan No. 2, at six per cent.	6,984 00
Stock	7,000,000 00
Baring, Brothers & Co., London, for balance now due	183,708 95
State of Maryland five per cent. sterling bonds	3,200,000 00
Forfeited stock, for balance of that account	183 45
Interest received on city stock	1,170 65
Revenue, for balance of this account on 1st October 1845	\$581,767 21
Amount accrued since	895,315 22
Dividend from Washington road in April last	25,815 00
	\$1,502,897 43

Less expenses, repairs and interest, including the sum of \$206,312 06 expended for reconstruction, locomotives, improvement at depots, and various purposes on account of construction	710,614 41
	792,283 02
	\$12,104,330 07

STATEMENT B.

Revenue and Expenses of the Main Stem.

The amount received for the transportation of passengers, mails and merchandize, for the year ending the 30th September, 1846, has been	\$538,375 30
And the amount from the coal trade, inclusive of a debt of \$13,627 69 due by the New York and Maryland Iron and Coal company, is	56,939 83

Making an aggregate of	\$595,315 23
And the expenses for the same period have been the following, viz:	
Expenses of transportation, including fuel, salaries of the superintendent, agents, conductors, etc.	\$146,057 91
Repairs of the road	116,163 49
Repairs of locomotives	56,061 17
Repairs of passenger cars	18,683 48
Repairs of burden cars	29,950 65
Repairs of bridges	58,139 73
Repairs of depots	10,749 71
Repairs of water stations	2,119 75
Watching bridges and pumping water at water stations	9,575 81
Office and incidental expenses, including salaries, house rent, fees to counsel, etc.	7,356 16
Making an aggregate of expenses of	454,839 89

And showing the net earnings of the road to be	\$440,475 34
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## STATEMENT F.

Statement of the Revenue and Expenses of the Washington Branch of the Baltimore and Ohio Railroad for the year ending the 30th September, 1846.

The amount received for the transportation of passengers and merchandize for the year ending the 30th September, 1846.....\$225,559 61

And the expenses for the same period have been as follows, viz:

Bonus to the State, one-fifth of the receipts from passengers.....	\$42,402 60
Expenses of transportation, including fuel, salaries of the superintendent, agents, conductors, etc.....	26,546 59
Repairs of the road.....	18,045 95
Repairs of locomotives.....	12,106 11
Repairs of passenger cars.....	13,207 71
Repairs of burden cars.....	7,021 70
Repairs of depots.....	975 02
Repairs of water stations.....	165 85
Repairs of bridges.....	1,763 21
For construction of passenger cars.....	4,000 00
Office and incidental expenses—including salaries, house-rent, etc.....	4,964 01
Interest on the Elk Ridge land-annuity.....	1,250 00
Right of way and damages.....	271 00
	<hr/> 131,622 75

Showing the net earnings of the road to be \$93,936 86

Office of the Balt. & Ohio R. R. Co. }  
October 1st, 1846. }

J. I. ATKINSON, Secretary.

## Cincinnati, Dayton and Hamilton Railroad.

At a late meeting of the board of Directors of the Cincinnati, Hamilton and Dayton railroad company the survey and final location of the road from this city to Hamilton, was submitted preparatory to putting the line under contract. The company intend, if possible, to have the grading completed this year, so as to have the road ready for the superstructure early next season. This is an important improvement, and must be greatly beneficial to Cincinnati, says the Gazette. Meetings have been held at Richmond and elsewhere, to take steps to extend the line from Hamilton, on towards Indianapolis, to form a link in the proposed road from Cincinnati to St. Louis. Those feeling an interest in this enterprize, who have not yet taken any of the stock, would do well to subscribe without further delay.

## ITEMS.

**A New Destructive.**—We understand from a gentleman who has recently returned from Washington, that the government has just concluded a negotiation for the purchase of a most formidable weapon of destruction, in the shape of a rocket, which can be impelled by one man, and yet will destroy life and property at a distance of two miles. This weapon was invented by an Englishman and offered to the government, but not adopted by them, when an American saw its destructive properties, and purchased the patent right for £1000. He then returned to the United States, and offered it to the war department, and after it had been subjected to experiments in presence of all the distinguished military and naval officers, it was approved of and purchased for \$20,000. A company of artillerists are to be drilled expressly to the use of this weapon and despatched to the seat of war forthwith.

**Canal Trade.**—Ninety boats laden with the produce of Pennsylvania entered the Tide Water canal for Havre de Grace during the first week of navigation.

**Ship Building on the Ohio.**—A letter from Marietta describes the launch of another full rigged barque at that place. She is about 300 tons burthen; length on deck 104 feet, depth of hold 12 feet, breadth of beam 24 ft. 3 in., draws 6 feet 6 inches forward, and 7 ft. 10 inches aft; her cabin containing 10 state rooms handsomely furnished. She is loading with corn at Portsmouth, Ohio, and will sail in a few days for Cork, Ireland. The Cincinnati Enquirer says that the two schooners recently built on the Ohio, the Grace Darling and Ohio, left that place last week, for Salem, Mass., freighted with western notions, viz: 508 barrels of pork, 503 barrels of beef, 1513 kegs and 200 barrels lard, 91 barrels flour, 60 bags and 26 barrels dried apples, 6 barrels peaches, 110 tons black walnut timber, 8543 staves, 16 dozen axe handles, 2000 locust trenails, 34 half-barrels beef, 75 kegs butter, 6 bags hickory nuts, 150 handspikes, 167 dozen belaying pins, 15 sacks feathers, 50 sacks corn, 12 boxes madder, and to top off with, 70 barrels whiskey. They will probably be about one month making the trip.

**Lake Superior.**—This immense inland ocean is 490 miles in length, and 1700 miles in circumference: being the largest body of fresh water on the globe. It contains many islands, one of them Isle Royale, is 100 miles in length, and 40 miles broad. Upwards of 30 rivers empty themselves into it, and one curious fact in relation to it is well ascertained, that the quantity of water discharged by the Sault Ste Marie, is not one-tenth what it receives from its tributary streams. Evaporation must, therefore, be the principal agent in keeping the lake down to its usual level. A survey for a canal at the Sault Ste Marie, on the British side, has been made by the Montreal Mining company. The distance is stated to be half a mile, and the fall 18 feet; the excavation mostly in sandstone. There is scarcely a doubt that this work will be speedily accomplished, for it will complete the chain of ship canals through Canada from tide water into the waters of lake Superior; and the projectors are in hopes that this canal when finished will enable them to command the increasing business on both sides of this great inland sea.

**Railway Dividends in France.**—The dividend of the Paris and Rouen railway company, fixed by the recent general meeting at 25 $\frac{1}{2}$  fr. per share, is advertised to be paid on and after the 10th inst. The interest of 4 per cent, or 20 fr. per share, in the Rouen and Havre railway, is also advertised to be paid on and after the 11th inst. There are at present opened in this country, 1435 kilometres of railway; and 529 kilometres additional may be brought into circulation in the course of the present year. The first railways ever made in France were in connection with coal mines; and the railways, either exclusively or principally devoted to the conveyance of coal, are even now of no inconsiderable length. They are as follows:—the railway from St. Etienne to the Loire, 21 kils., from St. Etienne to Lyons, 60 kils.; from Montbrison to Montbrison, 16 kils.; from Epinac

to the Canal de Bourgogne, 28 kils.; from Denain to Abbecon, 14 kils.; the railway du Gard, and de la Grand Combe, 86 kils.

**Arnoux Railway.**—A recent number of the Mining Journal contained a favorable notice of the little railway from Paris to Sceaux, constructed on M. Arnoux's principle of extraordinary sharp curves. The tiny line is certainly a curiosity in railways. It twists and twines about like a serpent; and at one of the stations the curve is so sharp, that the people on the locomotive might almost shake hands with those in the last carriage. It ascends, too, by means of these twistings and turnings, a very steep hill—a feat perfectly impossible to an ordinary railway; but M. Arnoux's system has two immense drawbacks, which will alone suffice to prevent it from coming into general use.—The first is, that the rate of travelling upon his railway is extraordinarily slow—scarcely quicker than an ordinary stage coach. It takes positively about 25 minutes to go from Paris to Sceaux, although the distance is not greater than 6 English miles. Such a rate of speed will certainly not satisfy the travelling public in this go-a-head age. The next objection is, that not more than six or eight carriages can be employed in a train. If there were more than eight, the last carriages in the train would be in danger of being thrown over at the curves, from the simple fact, that they would be running in one direction, whilst the locomotive would be pulling in another. This objection was pointed out by scientific men before the opening of the line; but M. Arnoux denied its force, alleging that the principle upon which his wheels are constructed, and which makes part of his plan, obviated it. But he has since been compelled virtually to admit its truth, by never allowing more than a train of eight carriages (the locomotive has no tender) to travel on the line. Notwithstanding these objections, however, there is no doubt that M. Arnoux's system might be adopted with great advantage in mountainous or even hilly countries.

## RIDING PRIVILEGE ON RAILROADS.

A correspondent, in yesterday's American, has called public attention to the resolutions which lately passed the first branch of the city council, to confine the privilege of gratuitous riding in the railroad cars to the directors alone, and the amendment adopted in the second branch, extending it to the families of directors—and we are glad to see that the American's correspondent recommends the resolution without the proposed amendment, as we think the privilege, if confined to the director alone, would afford him a handsome compensation for his services, if he lives on the line of the road. We will speak particularly of the Baltimore and Susquehanna railroad, with which we are familiar. The charge of travel along the line from Baltimore to York, varies from 12 $\frac{1}{2}$  cts. to \$1 50, according to distance. A director living six or seven miles from town, and going and coming daily, will save \$124 80 per annum, supposing him to travel 312 days in the year—farther from the city he would

save from fifty cents to one dollar per day, or from \$156 to \$312 per year. If half this sum be added for the passage of members of his family, it will be seen that his becoming a director is of some importance to his interests. We think it perfectly correct that the director shall travel free of cost himself, so long as he is paid nothing for his services; but we have uniformly been of opinion that the privilege should not be extended farther, because it is liable to be greatly abused. We do not believe that any of the directors on this road sought their appointments with views to the benefits of gratuitous riding, because but one of them resides on the road, and he seldom visits the city excepting in the discharge of his duty as a director.

While on the subject of railroad management, we will again suggest the propriety of adopting the system in operation elsewhere, of selling tickets for the season, or in quantities, at a reduced price, to way passengers. Experience has demonstrated that it increases the number of passengers, and adds to the revenue of the company. We hope that the directors of the several railroads will take this subject into consideration, as we are convinced that proper investigation will show them the propriety of adopting the course we have suggested.—*Balt. Clipper.*

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Bonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
**FULLER & BROWN, Agent,**  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10639 41f

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by  
**JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,** 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	37	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 9	6½	9 4	13½	1-3	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1524

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. **W. H. CALKINS, and Others.**

To all whom it may concern.—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] **WILLIAM ROE, Supt. of Power.**  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed.] **G. A. NICOLL,**  
Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern.—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] **T. L. SMITH,**  
Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, } [Signed.] **JOHN LEACH,**  
Jamaica November 12, 1846. } 1y19 Supt. Motive Power.



# **RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was not hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the safe was removed, and so hot was it that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 21st of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C.

## **FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Eliou, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Samerville Railroad, R. R. Caylor, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fink, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch. Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York. ly

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by J. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

## **SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works;

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

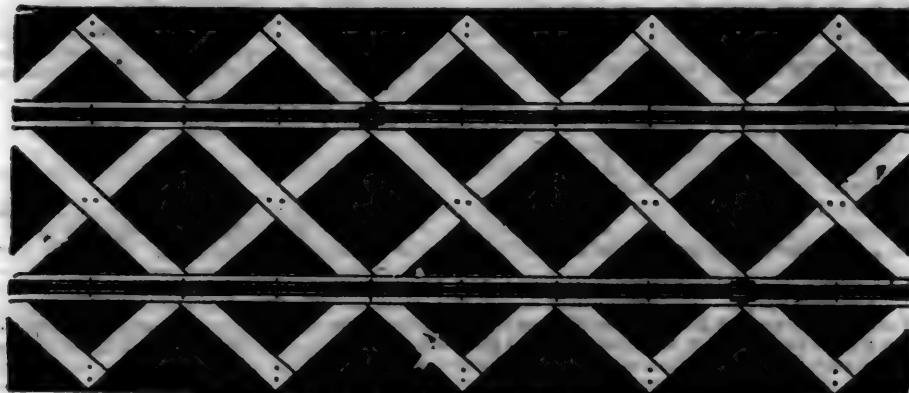


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = .....\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = ..... 57 94
13,000 Spikes = 2,250 lbs. at 4½ cts. ....	101 25
Workmanship free of patent charge.....	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

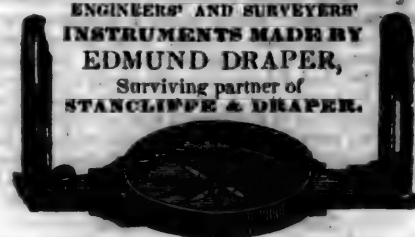
No. 277 South Third St., Philadelphia. 331f

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor, D. K. MINOR.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia.  
1510 near Third,

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1525 98 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address: J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y Maryland.

### ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adr.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adr.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adr.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adr.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adr.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adr.)

FRENCH & BAIRD, Philadelphia. (See Adr.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adr.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIR, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNK, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 16.]

SATURDAY, APRIL 17, 1847.

[WHOLE No. 565, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4:10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.  
31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and \$3 00	
" " Reading, 58		2 25 and 1 90	
" " Pottsville " 34		1 40 and 1 20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

### SUMMER ARRANGEMENT,

April 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 5 P.M.

Leave Great Falls at 6½ A.M.

### HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.

Leave Haverhill at 6½ A.M. and 4½ P.M.

### READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.

Leave Reading at 6 A.M. and 1½ P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.

Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

" Middletown at 6½ A. M. and 5½ P. M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P. M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 of

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement, commencing

Monday, April 6, 1846.

### Accommodation Trains, daily,

except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

31 ly J. W. STOWELL, Sup't.

**TROY RAILROADS.—IMPORTANT NOTICES.**—Troy and Greenbush Railroad, forming a continuous track from Boston

to Buffalo and Saratoga Springs. This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from Boston and intermediate places, leaving Greenbush daily at 1 1/2 p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7 1/2 a.m. and 4 1/2 p.m., or to connect with trains to Boston.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

#### TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail— which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7 1/2 a.m. and 1 p.m. and 6 1/2 p.m., or to connect with the trains for the west; leave Schenectady at 2 1/2 a.m., 8 1/2 a.m., 1 p.m. and 3 1/2 p.m., or on arrival of the trains from Buffalo and intermediate places.

#### TROY AND SARATOGA RAILROAD.

##### THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7 1/2 a.m., (arriving one hour in advance of the train from Albany,) and at 3 1/2 p.m. Returning, leave Saratoga at 9 a.m. and 3 1/2 p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burroughs at 3 1/2 p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug. 3, 1846.

1y 33

**BALTIMORE AND OHIO RAILROAD.** MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry— with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. al3y/

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

**BALTIMORE AND SUSQUEHANNA RAILROAD.**—Reduction of Fare.—Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3 1/2 p.m. Arrives at.....9 a.m. and 6 1/2 p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12 1/2 p.m. and 8 p.m. Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

##### FARE.

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12 1/2  
Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m. Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Supt.  
31 ly Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVANNAH to Macon.** Distance 190 miles.

This Road is open for the trans-

portation of Passengers and Freight. Rates of Passage, \$3 00. Freight—  
On weight goods generally... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime)... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.  
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40, Gen'l. Supt. Transportation.

**NEW YORK & HARLEM RAILROAD CO.**—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

##### RETURNING.

Leave Pleasantville, at 8, 10, [freight train,] and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 30 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

##### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

##### Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,  
Sif Engineer and General Superintendent.

**GEORGIA RAILROAD.—FROM AUGUSTA to ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and

Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

##### RATES OF FREIGHT.

		Between Augusta and Oothcaloga, 250 miles.	Between Charleston, Oothcaloga and Dalton, 388 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hoghead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75	1 37	

German or other emigrants, in lots of 50 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commission. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846. \*44 1y

**THE WESTERN AND ATLANTIC Railroad.**—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

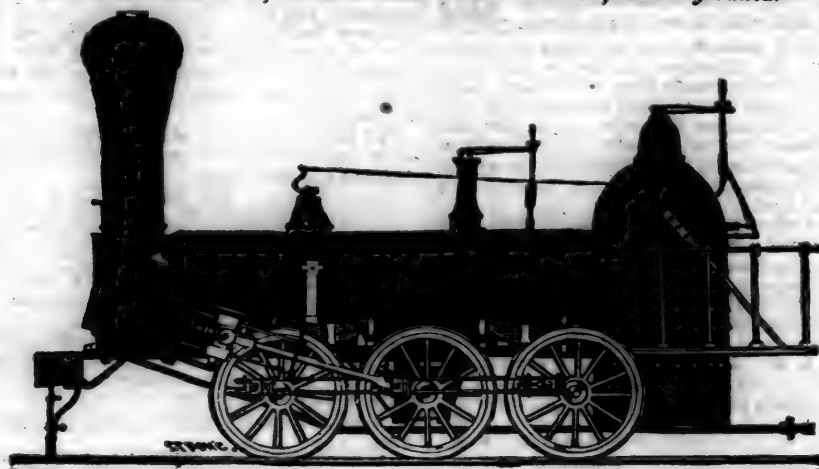
Atlanta, Georgia, April 16th, 1846. 1y1



NY 10

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper, }  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
A. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardner, Harrison & Co. Newark, N. J.  
30,000 to 30,000 made weekly.

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x46½ feet two stories high, with a shed part 45x30 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x36 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

**PASCAL IRON WORKS**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 8 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **NORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**



REPORT OF THE ENGINEER OF THE NASHVILLE  
AND CHATTANOOGA RAILROAD.

AUGUSTA, (GA.) February 14, 1847.

*To the Commissioners of the Nashville and  
Chattanooga Railroad:*

GENTLEMEN: I have the pleasure to communicate to you the results obtained from a survey, made at your request, during the past summer and autumn, with a view to ascertain the practicability and probable cost of constructing a railroad between Chattanooga and Nashville.

The survey was commenced at Chattanooga, the Northwestern Depot of the Georgia improvements, which, after turning the southern extremity of the Alleghenies, here terminate upon the banks of the Tennessee—690 feet above, and 430 miles from the Atlantic, and at the base of the second series of mountain ranges, that separate the Atlantic from the Western States. A direct line from this point to Nashville would cross these mountains nearly at right-angles; and pass a short distance north of Murfresboro. Upon such a route, or any line approximating very near to it, there would be almost insurmountable difficulties to overcome. It will be seen, however, from the following brief description of the topography of the several mountain ranges composing this series, that a route may be obtained through them, which though circuitous, is not only entirely practicable, but upon which a road can be constructed, at a cost which, from the character of the obstacles encountered, will be considered quite low.

The Lookout mountain, which is the first encountered, is but an out-lier of the main chain, commencing abruptly at the Tennessee river, and rising much above the others, stretches in an unbroken line to the Coosa in Alabama—forming an impassible barrier to the construction of a railroad upon any route between the banks of these streams.

The second is a spur of the Cumberland, from which it is separated by the Sequatchee river. The Tennessee, instead of following what would seem to be its natural channel to the Gulf, through Lookout and Wills' vallies, severs this spur, leaving that portion known as Waldin's ridge on the north, and Raccoon mountain on the south, opening a passage along its banks for a railroad between them. Thence it follows a course parallel to its previous general direction to Gunter's landing, where it turns the southern extremity of the main Cumberland, and enters the Ohio near its mouth. In addition to the gorge through which the Tennessee forces its circuitous channel, the Raccoon mountain is cut by a deep defile leading from Lookout into Running Water valley, along which the Old Federal road, from Augusta to Nashville, formerly passed. The summit of this pass is but 338 feet above Chattanooga, and will afford a practicable line over it.

The main Cumberland is the last of the series, and offers the greatest obstacle to a direct route. Within the range of our examinations its summit is covered by extensive table lands, averaging about 2000 feet above

the ocean; this uniform elevation is preserved until we reach the head waters of Crow creek, where a depression occurs of about 700 feet, known in the vicinity as Montgomery's Gap, eight miles east of Winchester. The elevation of this Gap is 1365 feet above the Atlantic, and but 200 yards wide on top, with steep declivities on each side admitting the passage of a railroad by means of a short tunnel, 209 feet below its apex.

From this general view of the features of the mountain ranges it will be perceived that the route of the railroad must either cross the Tennessee at Chattanooga, avoiding the Lookout altogether, and follow its right bank to Crow creek, passing near Hornbacker's mill and crossing the Sequatchee on the Rutledge lands—or, keep the east side of the river, and passing under the cliffs of Lookout mountain enter Lookout valley, and thence up this to the defile leading into Running water valley, and along this to the Tennessee near Gardenhier's ferry. Thence along the river banks to Nichajack Cave, where we enter Hog-jawbone valley, and pursue it near the base of the Raccoon mountain until we again strike the river at the foot of Long Island. The road may either cross the river at this point, or follow its left bank farther down, and thence pass over to the valley of Crow creek. This route is about 16 miles shorter than that by the river, but encounters gradients at the Lookout mountain of 63 feet per mile: which, however, may be reduced to 45 feet, by a bolder and more expensive line, thrown upon the escarpments of the mountain.

As the route by Running Water was examined more carefully than by the river, I have founded the estimate of the cost of the road upon it, though the latter, notwithstanding its increased length, will, it is thought, prove the least expensive.

After entering Crow creek valley, the route will pass over an even surface, with favorable gradients, until it reaches Mr. Walker's, where the ascent of the mountain is commenced and overcome by a continuous inclination of 1.9 per 100 feet for 4½ miles, to the entrance of the tunnel. At this point the road will attain the elevation of 1156 feet above the ocean, and pass through the mountain by a tunnel 2100 feet in length, and thence descend by a similar or easier gradient, of about two miles in length, to the Boiling Fork of Elk river.

A tunnel of 2100 yards in length, would pass through the mountain nearly upon a level with its western base, an ascent of only 325 feet from the foot of the eastern slope, which could be overcome by the general maximum gradient used upon the remainder of the route.

The construction of a railroad across the mountain at this point, is much less difficult than upon any of the routes proposed to connect the Atlantic with the Mississippi valley, and also overcomes a much less elevation. The height of the shortest tunnel above the ocean being but 1156 feet, while the Central railroad of Pennsylvania, on its most favorable route, will encounter an elevation of 2183 feet, and the Baltimore and Ohio road 2370

feet at the tunnel, which is 400 feet below the apex of the mountain.

The descent from Montgomery's Gap brings us upon a comparatively level region, which skirts the whole western slope of the mountain, and is about 350 feet above its eastern base. This elevated plateau is in fact a branch of the main mountain, extending in width in the direction of Nashville, to the ridge dividing Elk and Duck rivers, where the face of the country suddenly drops off, between 200 and 300 feet, and thence gradually descends towards the Cumberland; its general character being a plane, crossed by several high and broken ridges, interspersed with a number of mounds or knobs, offering no material obstruction to the easy graduation of the road.

The route examined through this region, after leaving the mountain, passes 2½ miles above Winchester, and crosses Elk river between Spring and Taylor's creeks, and thence follows the ridge, dividing these streams, to the head of the latter, whence it passes across some of the flat branches of Rock creek, and intersects Elk ridge at Montgomery's. Thence the descent from this step of the mountain is effected, at the general maximum gradient, along the valley of Norman's creek without encountering much expensive work, reaching the plane below at the Barren Fork of Duck river. The line of survey follows this stream to the Three Forks, thence up the Garrison to War Trace, and along the latter to Bell Buckle, at the head of which it passes the high ridge parting the Stone and Duck river waters, at a point where it is entirely severed, admitting a very easy ascent to the summit.

From Bell Buckle summit, the descent to the Stone river waters, is at 42 feet per mile, over an even surface, passing in the vicinity of Fosterville, and south of Lee's knob. Thence the country offers no further difficulty until we reach the ridge dividing Stewart's and Hurricane creeks, where there may be some expensive work. The line traced crosses this ridge at Captain Oliphant's and then passes over even ground to the ridge between Hurricane and Mill creeks, which it crosses at the head of Collins' creek, and thence follows the favorable slopes of the latter to Antioch meeting house. Whence the general course of Mill creek is pursued to Whitest church, where it leaves it, and passing in the vicinity of Mr. Raines', crosses Brown's creek and enters Nashville.

Between the Tennessee river and Nashville, the line surveyed is quite straight. The face of the country, after passing the mountains, will admit of a number of other practicable routes, some of which have been examined instrumentally. The line already described was traced, after a full reconnaissance of the country, and without reference to any local considerations, being governed by the character of the ground, and its advantages with reference to the trade and travel passing between its termini. I was not sufficiently conversant with the products and population of the region which may be made tributary to the road, to enable me to deter-

mine how far its general directness could be sacrificed to the local trade, with a view to its greatest profitableness to the stockholders, and consequent usefulness to the community. Upon a full examination of this subject, in all its bearings, it is probable that many deviations from the line surveyed will be found advisable.

A route leaving the Tennessee valley by Battle creek, or little Sequatchee river, would save from 10 to 15 miles of distance, but would have to overcome an additional ascent of between 800 and 900 feet, which is equivalent to about 34 miles of increased length of road, making the longer line in the cost of transit over it, much the least expensive, and practically, some 20 miles the shortest.

The following condensed statement will exhibit the cost of the road, upon the preferred route. I have not thought it necessary to trouble you with the details of the estimate:

ESTIMATE.	
Graduation, bridging and tunneling.....	\$1,440,000
11,750 tons of railroad iron.....	940,000
Iron chairs, spikes and bolts.....	76,000
Cross ties, ground sills, etc.....	92,000
Laying superstructure.....	78,000
Engineering and contingencies.....	184,000

\$2,810,000

Of the above amount you will perceive, that there is not much over one-half due to the physical difficulties of the country. The remainder is chiefly the cost of the superstructure, which is mainly dependent upon the quantity, and price of iron, its chief constituent. The estimate is predicated upon an  $\pi$  rail weighing 75 tons per mile, laid upon cross-ties 24 feet apart from centre to centre, supported throughout by heavy ground sills.—This plan will give a superstructure amply sufficient to sustain the traffic that may reasonably be expected upon the road. In addition to the cost of the road, there will be required for the purchase of locomotives, and construction of cars, shops, warehouses, water stations, and overseer's dwellings, the further sum of \$320,000.

The whole length of the road will be 152 miles, the general maximum gradient 42 feet per mile; or a rise of 8.10 in 100. This gradient is exceeded, at the Cumberland and Raccoon mountains only; at both of which, as I have before observed, a resort to a steeper inclination may be avoided. The first, by a tunnel of 2100 yards long, and the other following an almost level route, along the bank of the river. The longer tunnel would add fully \$300,000 to the cost of preparing the road bed, while the annual cost of supplying the necessary auxiliary locomotive power for the higher gradient, (upon the line estimated,) would not exceed \$5000, and this engine could be employed during the intervals of passing the trains, in carrying the coal cars to the central depot opposite Winchester.

The increase in the length of the route by Montgomery's Gap, over a straight line between Nashville and Chattanooga is about 38 miles, which is by no means a larger increase than is usual in passing a mountain region. On the proposed Central railroad of Pennsylvania, from Harrisburg to Pittsburg, the increase on the most direct route of the

several surveyed, is 77 miles, or an addition of 48 per cent.; while on that portion of the Baltimore and Ohio railroad, now in use, east of the mountains, the increase is over 66 per cent. Whether this ratio is increased or diminished between Cumberland and the Ohio, I am not able to state.

The southerly detour in the line, which is necessary to pass the mountain, at its low depression, is not without its counterbalancing advantages. In addition to the greater extent of mineral and fertile region, thereby accommodated, the route, is thrown within a distance of Huntsville, which will render a communication with that important section of country, by a branch intersecting it near Winchester, not only more feasible as an outlet to the Atlantic than any other; but it will at the same time give them a connection with New Orleans, through Nashville, inferior to none that has been suggested.

If it should become necessary—from a failure to raise the means to complete the whole enterprise at once—to stop at any intermediate point, a good communication could be maintained with the Georgia improvements, by steamboats on the Tennessee, if the road should be carried no further than from Nashville to its banks. The cost of this portion of the line—116 miles in length—may be stated at \$1,950,000. The navigation of the Tennessee between this and Chattanooga, can be accomplished with light steamboats at all seasons, and during the winter and spring, by boats of large burthen. The only obstructions of importance, are encountered in passing between Walden's Ride and Raccoon mountain; where the contracted channel of the stream, at the "Suck" and "Pot"—the first during low water and the latter at higher stages, renders the ascent in consequence of the rapidity of the current difficult. The depth of water at all seasons, at these points, is ample, and the impediments to the navigation involve simply the question of time, the process at present adopted to draw the boat through the current, is tedious, and could, if the trade should increase sufficient to justify it, be superseded by the use of mechanical means, that would render certain, and greatly reduce the time now consumed in passing them.

This partial execution of the projects should be adopted as a temporary expedient only: the completion of the whole enterprise to be carried forward as early thereafter as practicable. In any event it would be the most judicious policy to pursue this plan, as the majority of the line could at once be brought into profitable use.

It is not the province of the engineer, to submit estimates of the probable profits of a railroad, unless founded upon specific data, in relation to the transportation and travel, that may be expected upon it; though it has frequently been their practice, to indulge in such calculations. I am not, however, in possession of statistical information, that will enable me to do justice to the subject, and I shall therefore prefer, simply referring to the fact, that there is no instance in the United States, where a railroad, that has been "judiciously

located, and economically constructed," that has not on completion proven a good investment of capital. The Georgia railroad—with which I am more familiar than any other—traverses a country compared with that over which your road will for the most part pass, would seem but a barren waste, has never yielded less than six per cent. net profits, and this has been accomplished, with its connections incomplete, encountering strong competition from rival works, and burthened with over 40 miles of unproductive branches. If results like these have been obtained under such circumstance, by a road through a country sparsely peopled, and possessing no coal or other mineral to swell its business, relying mainly for support, upon its local trade and travel; what may you not reasonably expect, from the completion of your road, whose western terminus is the depot of an agricultural region, unrivalled for the extent of its contiguous fertile lands, and the abundance and variety of their products, and which for the most of its length, traverses this rich and populous region, and for the remainder of the distance, a mineral district abounding in iron ore and coal, the latter of which, of itself, affords ample business for many of the northern railroads.

But any calculations of revenue founded upon the present statistics of the country, will present but a partial exhibit of the business that will follow the execution of your enterprise, as railroads have, to a very considerable extent, the property of creating their own transportation. Products of the soil, mines and quarries, which, in consequence of the cost of their transportation to a market, are now enumerated in the schedule of the wealth of the State, will then be brought into use to an extent of which we can at present realize but a faint conception. In no section of the Union has nature distributed with a more bountiful hand the various elements of manufacturing prosperity, than upon the line of this road, and no where will their development add more largely to the population and wealth of the adjacent country, and consequently to the travel and transportation upon a road through it.

The rapid development of the hidden wealth of a mineral region, through the influence of internal improvements, will be better appreciated from the consideration of the fact, that the products of the coal fields of Pennsylvania, but 25 years since, were less than those of Tennessee at the present time. Now, they yield annually upwards of 2,500,000 tons, worth, delivered at the sea board, \$10,000,000. As large as this sum appears, it is still small compared with the product of manufacturing industry, called into activity by the use of coal, and to the success of which it is now an indispensable element. The extraordinary increase in the value of the mineral region of Pennsylvania, is not more striking than was the effect of the completion of the Erie canal, upon the agricultural prosperity of Western New York, or the Western railroad upon the increase of the population and wealth of Boston. These are not isolated cases—similar prosperity has every where



attended those countries traversed by these improvements, and in proportion to the productiveness of the soil, and the abundance of its mineral resources are their benefits felt.

That there will be a connection between the south Atlantic coast and the great West at an early period, no one acquainted with the extent and importance of the interests to be beneficially affected by it can for a moment doubt—and that the route of your road is the most advantageous for such a communication is equally clear. Through the Cumberland it brings the mouth of the Ohio—the heart of the west—more than 700 miles nearer to the Atlantic, than by any of the present avenues of commerce, an advantage which must claim for the line, a large share of the travel and transportation of the products and consumption of the Mississippi valley. It would seem unnecessary, however, to go beyond the country which now makes Nashville its market, to find ample business to justify the construction of this railroad—opening as it does to Middle Tennessee, a direct route to consumers of her present products, distributing them through Alabama, Georgia, Florida and Carolina, by means of the net work of railroads diverging from Atlanta the Atlantic end of the Georgia State railroad—leaving out of view the foreign market for Indian corn, her great staple, which will find at Charleston and Savanna a cheap and ready transit to Europe.

The improvements in machinery and construction of railroads, have been so great within the last few years, that all other artificial mediums of transportation have nearly ceased to be considered as rivals, and many of the natural channels of trade now offer but a feeble competition for the products that formerly floated upon their currents. In fact, the causes which have heretofore tended to fix, and seemingly render permanent, the location of cities, have in a great measure lost their influence, and hence it has become the part of wisdom, in those interested in sustaining the present depots of commerce, to call to their aid this comparatively new agent—availing themselves of its powers to preserve and increase their prosperity rather than permit it to minister to the rise of other and rival cities.

In conclusion, I will add that the considerations in favor of the construction of this work, are so strong—its "value to the farmer, mechanic and traveller so clear," and its importance to the continued prosperity of your city, so manifest, that I cannot for a moment believe, that there will be lacking the enterprize or the means, necessary to carry it through, when the subject shall be properly brought before the citizens of Tennessee. Its construction need not be a drain upon their resources. A proper application of their time and labor will enable them to complete most of the graduation and superstructure without materially interfering with its ordinary operations; and the iron may be made within the State, upon more favorable terms than it can be procured from any other quarter, leaving but little cost to be expended for foreign labor or materials, and making its construction add to

the activity of the population and the early development of the resources of the State.

I take this occasion to acknowledge the hospitalities extended to myself and assistants by the citizens of Tennessee, upon the line of our survey. It has been my fortune to have been professionally engaged in nearly every section of the Union, but I have nowhere met with so cordial a welcome, or observed such strong feeling manifested in favor of any enterprize as by the people generally, for this.

The immediate direction of the instrumental examinations was committed to Theodore S. Garnett, C. E. of Virginia, who carried forward the survey, with great perseverance and energy, accomplishing a vast deal of work with very limited means.

All of which is respectfully submitted, by  
Your obedient servant,  
JOHN EDGAR THOMSON,  
Civil Engineer.

#### Foreign Items from the English Papers.

##### Wheel Tires—Accidents on Railways.

Sir—I observed in your valuable Journal of the 30th ult., some remarks by "Nauticus," respecting the cause of the accidents which has recently occurred on the Great Western railway, in which he mentions the insufficient manner in which the tires of the locomotive wheels are put on—of which I have exactly the same opinion. It is my belief, that if the ring of the wheel were made a little concave on the outside—say 3-16 of an inch for the centre of concave, which is not a great deal, allowing the ring to be six inches wide—by this construction, the tire would not slip off the ring by any lateral pressure on the flange; likewise, the tire should be made a little convex on the inside, in order to make it fit firmly on the ring. Perhaps some will think that the tire could not be put on the ring sufficiently tight in adopting this plan, and that the tire would not grasp firm enough about the ring; but I have reason to think it will—that is, by means of the tire being sufficiently thick, and heated as hot as it will bear, without injuring the tire—it will expand and contract enough to bring it quite firm about the ring. I think it is very possible to put up the tires too tight; the iron, not allowed to have its natural contraction, gets crippled, and loses its tenacious properties. I believe that iron has a certain point of contraction to give its greatest tenacious gripe, without injuring its cohesive quality; and, as before stated, tires put on the rings of wheels so tight as not to give the iron its proper contraction, weaken it, and make it more liable, by lateral pressure and friction, to slip off, than if put on (if I may term it) tight, and that's all—so I cannot perceive there is any great difficulty in putting on the tires in the manner described: even a very small cavity in the ring, in my opinion, would prevent the tire from losing its grasp.—T. B. UREN. *Camborne, Feb. 9.*

**Protracted Progress of the Railway System.**—Had it not been for the force of prejudice, we might have had the railway system in active operation at a much earlier date, and that even in its present form it was but

the chance of votes of one or two directors that secured its advancement in 1829. All the main lines of railway now existing were projected in 1824 and 1825, and might have been executed before 1830, instead of lingering till nearly the present day; public and legislative ignorance, however, stood in the way, and it cannot be denied that the country has thereby been kept back for many years in its prosperity and advancement. To show more fully the operation of the retarding force of prejudice, we shall give the dates of many railway inventions and the dates of their recognized use:

1754 flanged wheels . . . . .	adopted 1815
1789 edge rails . . . . .	" 1815
1803 malleable iron rails . . . . .	" 1830
1820 parallel rails . . . . .	" 1835
1804 locomotive engines . . . . .	" 1821
1825 do. for passengers . . . . .	" 1834

In 1804 we had malleable iron rails, flange wheels, and the locomotive. We had, in fact, all the elements of the railway system; and had they then been fully adopted, their development must have been much more rapid than it has since been. In 1814, a speed of 20 miles an hour would have been gained by George Stephenson, and we should be at least 20 years in advance. Every part of the system has, however, been kept back by errors and prejudice; and the exertions of Richard Trevithick and George Stephenson retarded by the ignorance and want of reasoning power of their professional brethren. No theorem can be proved more effectually than that the railway system of 1825-1835 might have been carried out in 1805-1815, and it presents one of the clearest cases to be found in economical history of the prejudicial postponement of a valuable institution.—*Railway Register.*

##### Institution of Civil Engineers—Feb. 9.—

**Sir J. Rennie (President) in the Chair.**—The paper read was a description of the "Helder, or Great North Holland Canal," by George B. W. Jackson, Assoc. Inset. C.E. This canal was constructed by the late Mr. J. Blanken, engineer, during the six years between 1819 and 1825, for the passage of frigates and first class merchantmen, and extends from Amsterdam to Nieuwediep, in the Texel. The state of the navigation through the Zuiderzee, in the early part of the 17th century, having become so defective, in consequence of accumulated sand banks and shoals, that camels were necessarily made use of to lift the vessels over the shallows at Pampers, thereby incurring both extreme loss of time and inconvenience, the Dutch government deemed it necessary to consult Mr. Blanken on the possibility of remedying the evil. The engineer accordingly projected the above canal, which has three divisions, the summit level being only 3 ft 6 in. above the outlets; its length is 51 miles; it is 123 ft. 7 in. broad at top, 30 ft. 10 in. at bottom, and 20 ft. 6 in. deep. The pile driving and boring experiments undertaken by him to ascertain the probability of success, show that the original sea shore, being the only really hard ground in the north of Holland, is to be met with at 43 feet under the present surface

of the ground; and, as the foundations of the locks were laid nearly at that depth, the result of the experiments were considered to afford sufficient guarantee for the stability of the works. The character of the soil in that part of Holland is exceedingly treacherous; and it reflects great credit on our foreign neighbors, that they were able to overcome the various difficulties with which they had to contend.

The constructions generally consist of floating and swing bridges, tide locks, passage locks, etc. The floating bridges are peculiar, on account of their flexibility, consisting of two platforms, one fixed on each shore on piles—the end of each of which is worked by sets of double levers, and resting on two boats—so that, when the bridge is required to be opened, both boats are withdrawn, one towards each shore. The Willem lock is 297 ft. 8 in. long, 51 ft. 5 in. wide—the height of the lock wall being 32 ft. 6 in., and the gates being each 29 ft. 5 in. by 29 ft. 4 in. The total cost amounted to £1,500,000 sterling. The time required by vessels to make the passage from Amsterdam to the Helder, varies according to their size and the means of haulage; fly-boats with 6 relays of 4 horses each, making it in 10 hours—whilst large East Indians require 2, 3, and 4 days, according to the wind. The details of construction of the whole of the works were given very freely, and with illustrative drawings. In the discussion which ensued, it was stated, that the canal in this country, which could be contrasted with that of the Helder, was the Caledonian canal, which was projected upon a report by Watt, commenced by Jessop, and in a great part constructed by Telford, a few years previously to the Helder canal. The principal difference between the two consisted in the nature of the ground through which they were cut; the former being excavated entirely out of alluvial deposit, whilst the latter had to be cut out of hard gravel, and, in some cases, rock. An interesting account was given of the mode of forming the spot for the entrance lock at the Inverness and of the Caledonia canal. The object was to carry the work out into deep water. A large mass of earth was deposited in the sea to the full extent intended; upon this mound, a heavy load of material was laid to consolidate the mass.—After settling for a considerable time, the upper mass was removed, the excavation was made for the lock pit, and the construction was effected with comparative facility, and had endured much rough weather since without any symptoms of failure. The superincumbent weight which was removed, being greater than any subsequent strain, there was no danger of the lock ever sinking. The discussion was adjourned until the next meeting (Tuesday, Feb. 16th,) when it was announced that the second part of the paper would be read, treating of "the Method of Forming Fascine Embankments, and Sea Defences."

**Andraud's Railway.**—We were present three days ago at a practical experiment with a new system of railroad, the invention of

M. Andraud, on a convenient piece of ground at No. 4 Passage Cendrier, near the Rue du Rempart. M. Andraud is well known to the public by the experiments which he has performed in the 7 years during which he has been endeavoring to bring the system of railroad travelling by means of compressed air into perfection; but it is only now that he can be said to have arrived at such a point as to be able to exhibit a practical proof of his success, and at the same time remove the objections which have been started to his system. He has laid down a piece of railway about 100 yards, on which is an elegant carriage, impelled by compressed air with a smoothness totally unknown on the ordinary railroads; and, as the air is compressed to only one atmosphere, there is not the slightest danger to the passengers. There is no locomotive, the carriage or carriages—for they may be any number—being impelled by means of a tube laid in the middle of the road, and a pipe by the side, which keeps up the motive power. Independently of the safety to travellers by this system, which has all the advantages of the atmospheric railroads now in use, and none of their disadvantages, which are numerous, the construction of a road on this principle is, we are assured, of a very small cost, as compared with that of a railroad for locomotive engines, and there is an enormous economy in the working. As compared with the expense of the atmospheric principle, which is being established on the St. Germain railroad, the cost of working would, it is declared, be as 1 to 10; and we were assured by some engineers who were present at the experiment, that even as compared with the locomotive engine principle, there would be a saving of at least one half, as the wear and tear of engines is avoided, none being used, and the air is compressed at a very small cost, which was long the desideratum of this system. We hope these statements may be realized; for if they are true, M. Andraud's system must be adopted. The rate of speed may be regulated with ease from 15 to 50 miles an hour, or more if required.

**Railways in India.**—In the House of Commons, on Tuesday evening, in answer to a question from Lord Mahon, Sir J. C. Hobhouse said, that the report of the railway commission, sent out in June, 1845, was presented to the Board of Control on the 4th of July, 1846, and he had no objection to its being laid on the table, together with a minute of the Governor-general, and other communications. He said further, that the East India company and the board had agreed, on certain conditions, to propose to railway companies, but it was not yet known if they had been accepted.

**Continental Glass Manufactory.**—The first window glass manufactory in the province of Hainault commenced in 1625—soon after which two others followed, and there are now no fewer than 36 houses in full blast: 16 work 8 pots, employing 128 blowers; 26 with 6 pots, and 120 blowers; 36 with three stokers; 36 glass cutters and 15 potters—the total cost being £43,384 per annum. There

are five new glass houses being built for 1847, and two new companies forming to commence extensive works in every description of glass. The coal, charcoal, sand, etc., used in the glass manufacture is immense.

**Improvement in the Treatment of Ores.**—We have heard that within the last few weeks, a new process has been introduced by Mr. Oxland, of Plymouth, for the removal of wolfram, a mineral consisting principally of tungstate of iron, from tin ores, by means of which the tin is obtained in better condition, and the tungstic acid is also rendered available for manufacturing purposes. Thus, a substance, which has hitherto been injurious to the produce of tin ores, is actually rendered valuable—at the same time, the quality of the tin is improved. This application has been practically introduced at Drake Walls Tin Mine, near Gunnis Lake, on the river Tamar. The wolfram is found in considerable quantities in Drake Walls.

**Railway Traffic Returns.**—From these returns, it will be seen, that the amount of traffic for the last week, on nearly 2,730 miles of railway, was £133,282, thus accounted for: £65,524 for the conveyance of passengers only, £39,106 for the carriage of goods, and a remainder of £28,652 for passengers and goods together, not respectively apportioned; being an increase over the corresponding week of last year of £17,753, when the mileage was about 1,920.

**Chester and Holyhead.**—There are now 500 masons employed by the contractors for raising the piers for the iron tube over the Menai Straits, about to be erected at the Britannia Rock. These men are earning from 5s. to 6s. per day.

#### CENTRAL RAILROAD.

The following statement of the receipts of the Central railroad, for the month of February of each of the last three years, shows a most gratifying increase of the business of the concern.—*Savannah Republican.*

	1845.	1846.	1847.
Passengers.....	\$4,649 75	\$1,459 25	\$6,321 05
Freights.....	30,422 65	14,910 00	35,565 54
Mail.....	1,315 00	1,715 00	1,715 00
Total.....	36,787 40	21,084 25	44,601 59

#### Railroads at the Eastward.

The railroad "fever" in Maine has not yet subsided—and we are glad to learn, as we do from the journals, there, that the interest in this subject does not flag, as yet. The Augusta Journal, commenting upon the intended progress of railroads in Maine, says—"After we get a road from Portland to Augusta, the work on which will be commenced as soon as the snow is off and the frost is out, the next step will, no doubt, be the road to Skowhegan.—There is a great water power at that place, and so there is at West Waterville on the outlet of Snow Pond, not to mention Ticonic Falls on the main river, already famous far and near. We are told a very level road may be had to Skowhegan, from which place there can be no difficulty in carrying the road further up the river hereafter. We have strong faith to believe it will be carried as far as Anson in a few years. Equally strong is our conviction that a road will be made on the Androscoggin, from Bath to Livermore or Canton—perhaps further up."



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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, April 17, 1847.

Kennebec and Portland Railroad.

The attention of contractors is called to the notice for letting 28 miles of this road on the 15th of May next. It will also be observed that 21 miles more will be ready for bids by 15th June. This looks well for our eastern friends. They are resolved to make good in New England, what has been well said in old England, viz: "that the railway system will progress until every town, of any considerable note, has its railway facilities."

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.**—Proposals will be received at this office until the 15th of May, for the *Grading and Masonry* of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cuthance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.

ENGINEERS OFFICE, K. & P. R. R.  
Brunswick, Me., April 6, 1847. } 1m16

Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

Nashville and Chattanooga Railroad.

Some of our readers will probably recollect that we endeavored, some time since, to urge the importance—especially to Nashville and Middle Tennessee—of the early construction of a railroad from the Tennessee river—at the termination of the Georgia railroads—to Nashville, and thence to the Mississippi river. By referring to the Railroad Journal for 16th and 23d of October, 1845, and other numbers, it will be seen that we have devoted considerable space to, and took a warm interest in, such a work. And it affords us much pleasure now to refer again to the subject, and to lay before our readers the Report of J. Edgar Thomson, Esq., who has recently completed the preliminary surveys of the route from Chattanooga to Nashville. This report, it will be seen, makes out a very favorable line—the greatest elevation being only 1165 feet above tide water, with only two tunnels.

The estimated cost is \$2,810,000, for 152 miles—an amount too low, we think, under present circumstances, as the price of iron must be higher; yet, as Mr. Thomson intimates, the work may be done by their own people, and the iron may be made within the State, thus giving additional employment to the people, and new investment to their capital—and therefore there should be no delay in the movements of those who see, and feel, and appreciate, the value

of a well constructed railroad, through that region of country, to the people of Tennessee.

The views, and suggestions, of the engineer, are those of a gentleman of great experience in the construction of railroads, through a thinly settled country, and they are therefore, in relation to this particular work, entitled to high respect—and we know of few men, indeed, who are better qualified to carry them out, with limited means, than Mr. Thomson.

Central Pennsylvania Railroad,  
And its Chief Engineer.

We find in the U. S. Gazette of Saturday last, the following paragraph, viz:

"THE PENNSYLVANIA RAILROAD COMPANY.—We learn that the Directors of this company held a meeting yesterday for the purpose of making choice of Engineers, and their election fell as follows:

JOHN EDGAR THOMSON, Chief Engineer.  
Edward Miller, } Associate Engineers.  
William B. Foster, Jr. }

"These gentlemen are eminent in their profession, and under their direction the work cannot fail to be of the most approved character. The organization being now completed, so far as the principal officers are concerned, we may look for a speedy commencement of operations."

We agree with the Gazette, that if indomitable perseverance, in connection with other necessary qualifications, is any recommendation to a man, then has the company made a good selection of a chief engineer—with the other gentlemen we are less acquainted—yet report speaks well—and we look with confidence to a speedy commencement of the work, and eminent success in its completion.

Table of Railroads.

The following letter contains several corrections to our "Table of Railroads," worthy of note, for which we are obliged to the writer. If others, who have information of this kind, will take the trouble to put it in shape, and send it to us, we shall be able to add greatly to the value of the table. In relation to the query of the writer, as to the propriety or economy of constructing "cheap roads," to be worked by horse power, connecting villages—3 to 10 miles distant—with main lines of railroad, we can only say that such experiments have not, we believe, been very successful where attempted. Temporary roads require constant and heavy repairs, in proportion to their cost—and we seldom find, even small villages inclined to be satisfied with any thing less than their more important neighbors.

As to the merits of the "Forwarding" as carried on by the "Market street" gentlemen, upon the "State Works of Pennsylvania," we cannot say much—not being at all acquainted with its results, but we are quite sure that such a system will not work smoothly on roads managed by a company—Nor, indeed, do we think it can work well on any railroad, where there should be the strictest discipline among the subordinates—and the most perfect harmony between all the different departments—which cannot be where there are several distinct interests: as there must be where there are several distinct companies, or individuals working the road.

As to the "division of benefits," arising from the operations of railroads, we are decidedly of the opinion that those who use them—either for travel or transportation—to any considerable extent—come in for a larger "share of benefits" than those who invest their capital. The man who travels from Boston to Buffalo—or any equal distance—or sends a ton of freight on a railroad, derives more benefit than the man who owns \$250 of stock in almost any railroad in the country—especially if his time is of any value. And as to the term "monopoly," as applied to railroads generally, it has no meaning, as every man who desires, can own stock—and there

is but one single case within our knowledge, in the country where competing lines may not be built, if the business requires, and the people will build them; therefore they are not monopolies—as the term is usually understood.

The question "why can you not publish a monthly volume, as is done in London," etc., may be well answered in the Yankee manner—viz., by asking another—why will not the people in this country, interested in railroads, sustain the publisher of such works, as they do in England? When they will, then they can have them.

RAILROAD TABLE CORRECTION.

HANOVER, N. H., April 3, 1847.

Editor of the American Railroad Journal:

Sir—According to a request you made in the Journal of the 13th, of "each of your readers," I beg leave, as one of the unprofessional readers, to make some additions for your "Table of Railroads," etc.

No. 11. Central—10. Connecticut River, Burlington, Vt.

This is all right as far as the continuous line from Boston to Burlington is concerned—but the Central extends to from where No. 10 joins it (on the west bank of the Connecticut river, and to and at the mouth of White river) in the valley of the Connecticut, to Windsor, 14 miles. The Sullivan railroad joins No. 11 here, and extends, in N. Hampshire, to the intersection with the Cheshire—No. 15—before it crosses to Bellows Falls Village. As the west boundary of the New Hampshire extends to the Western bank of the Connecticut, the point of union between a Vermont and a New Hampshire road, is at the line; and the bridging of the Connecticut river is done by the New Hampshire road.

There is a road not in your list—called, if I mistake not, the "Boston, Concord and Montreal." This is now under construction from Concord to Meredith, and is independent of the Northern, No. 10.

The "Connecticut and Passumpsic railroad," from Canada line in Derby, has had a little work done upon it in Bradford, Vt. It is, however, still undetermined, by what route it shall be connected with Nos. 10 and 11—whether on the Vermont side of the Connecticut, to White river, or crossing at Oxford, N. H., come down via Lyme and Hanover to No. 10, in the valley of the Connecticut river.—The expense of a bridge at Oxford, must, I think, be much less than of one over White river.

There is a road now under survey (or was last fall) from Greenfield, Mass., to Brattleboro, Vt., not in your list.

A connected view of all the railroads from the N. York and New Haven, up the Connecticut valley, to Canada line, would be useful to New England and New York business men.

In 1829-30-31, I was acquainted somewhat with a small, but very useful, road from the Goochland coal pits, in Virginia, to James river, (north side.) This was of a very honorable order—bar iron on wooden rails—narrow track—a few (6 or 8 1/2) miles in length—and cost, if I recollect, about \$1000 a mile. This, on account of its early construction, might be worthy of notice—and a query, whether small villages within 3 to 10 miles of a main track, should not be encouraged to build cheap roads to connect with this, to be worked with horse power. Information upon the cost of construction of such roads would be valuable to the community, as with a road of easy grade, the business of a village might be most economically transacted.

What are the merits of the system of "Forwarding," so conspicuous in Market street Philadelphia, in connection with the Pennsylvania railroads?—

Might it not be usefully adopted in New England and pay a fair business commission to thousands not of the corporation, and thus, by division of benefits, interest a larger number of citizens in the support of railroads, and diminish greatly the opposition to them as monopolies. \* \* \*

Why can you not publish a monthly volume, as is done in London? about 4 by 5 inches (or 5 by 5) of all the railroads in the land—distances—fares and times through, and intermediate, connections, etc.—with a map. Such a manual, I believe, has a great sale abroad, at depots and in trains of cars, and includes all European roads. Is not No. 31 of your Table finished? Cars have run through since last November.

**Petersburg and Greenville and Roanoke Railroads.**  
OFFICE PETERSBURG RAILROAD CO. }  
March 27, 1847. }

DEAR SIR—I send you the following items concerning the *Petersburg and Greenville and Roanoke Railroads*, to fill up the blanks in your table of "Railroads in the United States:"

*Petersburg Railroad* runs to *Weldon*, N. C., and not *Blakley*, as in the table.

Gross revenue for 1845.....\$147,630 50  
Net revenue for 1845.....68,990 34  
Dividend 5 per cent.

Gross revenue for 1846.....\$163,093 20  
Net revenue for 1846.....75,960 97  
Dividend 6 per cent.

*Greenville and Roanoke Railroad.*  
Gross revenue, 1845.....\$25,368 94  
Net Revenue, 1845.....6,074 86  
Dividend none.

Gross revenue, 1846.....27,364 24  
Net revenue, 1846.....7,507 48  
Dividend none.

The profits of the *Greenville and Roanoke railroad* are applied to paying off the debt. Up to July, 1846, \$54,365 of the debt had been paid off, reducing the debt to \$25,109.

The *Petersburg* company, besides paying dividends as above, is paying off about \$30,000 of its debt per annum. The debt will all be paid off this year. I remain, respectfully, yours,

H. D. BIRD, President.

The above statement is very acceptable. It enables us to correct errors and make additions.—Will others, who have the means, do likewise?

#### Central Ohio Railroad.

It will be seen from the following letter, that there is a movement in Ohio for a railroad from the Ohio, at *Pittsburg*, or *Wheeling*, in the direction of *Columbus*. This is a matter of course. There must be a railroad through that part of the State, intersecting all the other works between the lake and the Ohio, and we hope to hear soon that the entire line is under contract. *Philadelphia* should look to it.

"I take the liberty to enclose to you, says the writer, by to-day's mail a charter granted by our last Legislature for the "Central Ohio Railroad Company." It looks to a connection, as you will see, with either *Philadelphia*, by way of *Pittsburg* and the "Pennsylvania Central Railroad," or *Baltimore*, via *Wheeling*, or near there, and the *Baltimore* and *Ohio* railroad.

"The latter, as being already partly in operation, appears the most likely to progress to its termination, and completion—and, consequently, our people look to that as the most probable point of termination.

"An engineer will commence a survey of the route from *Newark* to *Zanesville* on the 1st of March—with a view to locate the road. Beyond the object

of keeping you advised of the progress of railroad matters here, my aim in writing you at this time, is to call your attention, and through you the attention of other citizens of *Philadelphia*, and *Pennsylvania*, to the advantages to a commercial Eastern city of a continuous railway passing through such a portion of productive country as the *Muskingum*, *Licking*, *Scioto* and *Miami* valleys, in this State, to *Cincinnati*, and thence to *St. Louis*. An article in your *Journal* of the 13th February, from a *New Orleans* paper, shows the estimate which they place upon it. A proper attention to this matter at *Philadelphia* and *Pittsburg* will secure this trade. If they neglect it, others will profit by that neglect, and secure the results.

"I write this much, that the matter of such importance may be placed before those persons who will take an interest in it, in proportion to its moment.

"Is there any certainty that your "Central road" will be made? If there is not, (as some say,) then we do not wish to go to *Pittsburg*—and we must look to a communication with the *Baltimore* and *Ohio* railroad."

In reply to the question of our correspondent, we unhesitatingly say that the "Central railroad" will be built, and that, too, with very little delay.

#### Troy and Greenbush Railroad.

The following statement exhibits the number of passengers, and the amount of passenger and freight earnings, for each month from the opening of the road to the close of the year 1846.

Date.	No.	Amount.	Freight.	No.	Amount.	Freight.
Jan'y.	10,729	\$1,235 90	\$1,597 94	10,729	\$1,235 90	\$1,597 94
Feb'y.	9,580	1,192 94	1,310 30	9,580	1,192 94	1,310 30
March	12,905	1,643 35	1,383 60	12,905	1,643 35	1,383 60
April.	21,134	2,637 43	1,171 81	21,134	2,637 43	1,171 81
May.	21,827	2,611 47	1,020 02	21,827	2,611 47	1,020 02
June.	25,381	3,141 22	879 71	25,381	3,141 22	879 71
July.	33,204	4,000 41	925 73	33,204	4,000 41	925 73
August	36,219	3,801 74	930 52	36,219	3,801 74	930 52
Sept.	36,091	3,734 91	933 63	36,091	3,734 91	933 63
Oct.	23,925	3,347 03	1,698 65	23,925	3,347 03	1,698 65
Nov.	18,420	2,741 83	1,570 69	18,420	2,741 83	1,570 69
Dec.	16,620	1,736 94	2,601 48	16,620	1,736 94	2,601 48
	393,711	\$12,900 86	\$3,647 39	393,711	\$12,900 86	\$3,647 39

From January 1st to August 17th, the fare over the road was 12½ cents. From that date to December 7th, it was 15 cents. From that time it has continued at 20 cents.

#### Trade of the Central Railroad.

We lately published a statement from an English journal, in reference to the vast amount of live stock conveyed to London upon the principal railways entering that city. A writer in the *Philadelphia United States Gazette*, urging the importance to *Philadelphia* of a continuous railroad connection with *Pittsburg*, estimates the number of beef cattle that would pass over the road from *Pittsburg* to *Philadelphia* at 50,000 per annum; for each of which, it is stated, the drovers would willingly pay \$10—making an aggregate of \$500,000, from this item

alone. It is believed, too, continues the writer, that 500,000 barrels of flour would seek an Atlantic market by the contemplated railroad; and the receipt from the transportation of foreign emigrants from the seaboard to the west is set down as an item of considerable importance.

#### Cost of Canal Repairs.

We find in the last number of the *Rochester Democrat*, the following tabular statement in reference to a subject of interest at this time. It contains much interest to those who desire to offer proposals for portions or sections of canal repairs—as it gives the average cost of repairs per mile, for several years:

	Erie.	Oswego.	Cayuga & Seneca.	Chemung.	Crooked Lake.	Chenango.	Genesee Valley.
1828	\$513	\$239	....	....	....	....	....
1829	529	361	1,386	....	....	....	....
1830	461	349	247	....	....	....	....
1831	382	254	152	....	....	....	....
1832	743	340	243	....	....	....	....
1833	746	313	274	666	....	....	....
1834	976	338	401	691	231	....	....
1835	693	453	440	359	445	....	....
1836	704	1,434	1,368	361	592	....	....
1837	830	1,608	1,297	393	776	201	....
1838	851	1,371	861	364	556	214	....
1839	676	679	1,063	391	444	177	....
1840	827	915	1,124	335	592	159	125
1841	581	694	633	631	1,129	160	220
1842	732	827	719	933	1,014	195	341
1843	676	623	497	386	505	155	292
1844	844	752	656	344	493	164	299
1845	907	1,227	945	485	595	195	325
1846	843	1,409	560	395	663	190	334

#### The Western Telegraph.

MR. CASE—one of the proprietors under the patents—comes out in a late number of the *Cincinnati Inquirer*, with an explanation and statement, finally agreed upon, in regard to the *Western* and *Southwestern* lines of telegraph, the existence of which has not only hitherto retarded the progress of the work west of *Pittsburg*, but induced many to doubt whether it would not be abandoned. It seems now almost certain, says the *Cincinnati Gazette*, that we shall have a line in operation to this city in July next; for surely, the patentees will not refuse their assent to an arrangement which secures them advantages from early construction and in the adjustment of law suits, equal to any thing they give up to effect the settlement.

The plan for making a separate company for constructing the line from *Pittsburg* to *Cincinnati* and *Louisville*, secures the application of the funds raised along that line to its construction and support, and, by bringing the force of both Mr. O'Reilly and Mr. Case to engage, at the same time on different parts of the same line, the early completion of the whole is made sure.

The forming of a distinct company to construct the line from *Louisville* to *New Orleans*, in like manner secures the application of the funds raised on that line to its construction, and places in the subscribers the control of it when done. The same is the case on the line from *Louisville* to *St. Louis*.

The connection on all these lines with each other, is provided for; and the connection is also secured with the *Buffalo* line, with the *Pennsylvania* line, and with the lines east from *Washington* to *Baltimore*, *Philadelphia*, *New York*, and *Boston*, and even to *Quebec*. The stockholders are protected from responsibility beyond the amount they subscribe, and there is little room to doubt that the stock will yield a large profit as an investment.

There is no doubt now that we shall soon have intercourse with *New Orleans*, by means of this in-

\* Road opened for travel June 13th, and until July 4th, only two trips each day were made.



vention. The subscriptions in New Orleans, to the stock of the company, who propose to construct the telegraph between that city and Washington amounted, at the last accounts, to \$50,000.

#### St. Louis Railway.

The Senate of Illinois postponed indefinitely the bills allowing the right of way to the St. Louis and Cincinnati railway, which had previously passed the House. The Legislature has since adjourned, and does not assemble again short of two years, unless specially convened, therefore the right of way question may be considered as settled for the time being. The people of Alton, Ill., seem well pleased, says an exchange, with the defeat of this St. Louis project, so called, as one designed to prejudice the Illinois city for the benefit of the foreign city of St. Louis! The route from Vandalia east to Terre Haute, would be about the same, whether the road terminated at Alton or St. Louis. Now if foreign capital can be made available to construct that part of the road common to both cities, much against the interest of the State of Illinois, along the general line, to reject this capital, and go without any road, because the same capitalists are unwilling to raise money to continue the road thence to a terminus on the Mississippi, where they have no interests. We see no good objection to allow each city to connect with the common line. The question with Alton, in that case should be, will Alton be more benefited by a railroad connecting it with the Atlantic, if St. Louis has one also, than without any road at all.

#### Railroads in Ohio.

The people of the "Buckeye" State have at length become aroused to the importance of railroad communication over the extent of that rapidly growing region—and public meetings are being held at different points, to consider the subject, in earnest.—The question is embodied in the contest for the approaching election there, and we perceive by the Ohio papers, that the motto, "railroad or no railroad" is a common affair. The Ohio State Journal, at Columbus, one of the leading publications, says:

"The steam is rising. The people of Columbus, who have been sleeping so profoundly, while the enterprize of their neighbors has been actively employed, are now beginning to arouse themselves, to shake off their lethargy. But they seem to awaken from their Van Winkle repose, to adjust some ancient feud which had occupied their attention previous to their slumbers; and their wrangling about 'South End,' and 'North End,' is unintelligible jargon to one who has not been familiar with their household affairs for years past. No matter—let them settle all these affairs to their own liking, so that they be prepared to act efficiently and in concord, when the day for action arrives.

"Knowing nothing of the merits of the abstruse questions which seem to divide our fellow citizens into geographical 'enders,' we can of course take no part in such controversies; and yet we could do no less than allow their respective claims to be heard through our columns, couched as they are in respectful and temperate language. We would fain hope that by such discussion and mutual explanation, an harmonious understanding may be attained, and that all ends of the city may vie with each other in advancing the common welfare. Personally, we have little or no interest involved in the question of tax or no tax, railroad or no railroad, which is submitted to the electors of this city and county for their decision on next Monday week; and we have too much respect for the understanding of the electors aforesaid, to suppose that they cannot discern their own interests, without any promptings from us.

"We will barely remark in this connection, that the question for us to decide is not whether railroads shall or shall not be constructed in our vicinity. That question is already decided, and placed beyond our control. Such roads will be made—are now making; and the question for us to determine is, simply whether we will be partakers in the benefits resulting from their construction? Shall Columbus be a commercial mart, where the people of the country shall find a ready sale for their produce, and which shall diffuse the benefits of its capital and enterprize all around? Or, shall it and its inhabitants be made tributary to Newark, or Berkshire? Let that question be understood and decided."

#### Plank Roads.

We have published several paragraphs, and have alluded often, latterly, to the interest which is evinced—in the State of New York particularly—in reference to the subject of plank roads. This subject is exciting a deep interest in the minds of many friends of internal improvements in this country; and, as it has been, by the recent action of the New York Legislature, placed more permanently before the public, a sketch of the history and adaptedness of such roads for convenience and utility will not be unacceptable to our readers.

The system of plank roads originated, we believe, in Canada, in 1835, and owes its existence to the difficulty experienced by the commissioner of highways to better the condition of a few rods of quicksand. After trying various expedients without success, he finally conceived the idea of sinking heavy timber and planking it, similar to bridging, except that he filled the vacancy between the sleepers, or sills, with stone and earth. He watched the operation of it with interest, and found that he had overcome the quicksand trouble. He then tried the experiment over a marshy soil, and it worked well; and from these he conceived of the efficacy of a common road made of plank.

A company was formed soon after, says a writer in the Merchants' Magazine, for the construction of a plank road from Toronto to the river Rouse, which was finished in 1839. It met public expectation.—Another was built from Whitby to Lake Ontario; one from London to Godrich; another from Coburg to Rice Lake; one finished from the rapids, on the St. Lawrence, from Coto de Lac to——, about 16 miles long; and one from Longville to Chambly, commencing three miles below Montreal, which is 15 miles long. They have been sufficiently tested to the satisfaction of all, as being the best roads ever made for ordinary passage, and capable of being used next to railroad, in expedition to travel.

In the United States but little has ever been known of them, until three years ago, except by visitors to Canada, who always spoke of them in high commendation. The Rochester Democrat, in 1843, contained several letters in reference to them, written by a gentleman of that city, who was travelling through Canada. The letters were extensively copied by the press, and the adoption of them urged. Since then charters have been obtained for the construction of three roads in the State of New York viz: one from Buffalo to Aurora; another from Buffalo to Lancaster; the third from Salina to Brewerton. The last mentioned is the only one now constructed in the United States. It is 12½ miles long. George Geddes, of Onondaga county, was the engineer. As the subject is becoming a topic of much interest throughout this State, the mode of construction is of interest. We extract from a letter of Mr. Geddes to a friend:

"The planks are of hemlock, eight feet long, and

four inches thick, laid crosswise of the road, on sills four inches square. The earth is broken up and made fine, the sills are bedded into it, and the surface graded smooth; the plank are then laid on the sills, care being taken that the earth is up to and touches the plank at every point. This is important, for if any space be left for air under the plank, or alongside the sills, dry rot follows. I saw, in Canada, a road that had been worn out, and was being re-built. The sills were good, and the plank were sound on the under side, save where air had supplied the place of earth, and there they were destroyed by rot. The plank having been laid, the next thing is to grade a road, some ten or twelve feet wide on one side, and two or three on the other, by taking earth from the ditches on each side, and bringing it, by a ditch-scraper, just up to and even with the upper side of the plank, so that if a wheel runs off the track, it passes upon a smooth surface of earth. The ends of the plank should not be laid even, but a part should project from two to four inches by the general line, to prevent a rut being cut just along the ends of the plank. If the ends of the plank are even, and a small rut is made, the wheel of a loaded wagon will scrape along the ends for some distance before it will rise up to the top of the plank, unless the wagon moves in a direction nearly across the road; but if the wheel cannot move two feet forward without coming square against the edge of a projecting plank, the difficulty of getting on the road is avoided. It is not necessary to pin or spike the plank to the sill.

"Perfect drainage must be secured, and to that end the ditches must be deep and wide, and good sluices wherever water crosses the road. This is the important point—drain perfectly.

"As to the cost of such a road, I will answer you by giving you a copy of my estimate of the Salina road, which very considerably exceeded the actual cost. It is proper to inform you that this road was made upon the bed of an old road, filled in many places with stone and logs. The right of way cost us nothing. The estimate was for plank three or four inches thick. Where we laid two tracks, we laid one of them with three inch plank, but the main track was four inches thick. It is economy to use thick plank, if the travel is sufficient to wear out the road, but if it is to rot before it is worn out, then, of course, thin plank should be used. The Canada roads are generally three inches thick, and are made of pine, and last about eight years.

The following is the estimate of the cost of a single track of plank road, eight feet wide for one mile: Sills 4 inches by 4 inches.....14,060 ft. b.m. 8 feet width of plank 3 in. thick.....126,730 "

	140,800 feet, at
\$5 per thousand.....	\$704
Laying and grading, \$1 per rod.....	300
Engineering, superintendence, etc., 10 per cent. 102	
Gate houses, say.....	100
For 4 inch road, add 42,940 feet, at \$5 per M. .	\$211
Sluices, bridges and contingencies.....	\$3
Total.....	\$1,500

The Longuil and Chambly plank road in Canada, was re-laid the past season, after a wear of eight years. The income of the road paid a dividend of 10 per cent. on the cost of the first construction, and reserved a sufficient sinking fund to pay for re-building.

Fourteen applications are made to the present session of the New York Legislature, for charters to build roads of this description—four of them to lead from the city to Rochester.

### Baltimore and Ohio Railroad Report.

(Continued from page 536)

## STATEMENT 12.

*Tabular Statement, exhibiting in detail the operations and various actual expenses of working the "Main Stem" of the Baltimore and Ohio Railroad, during the year ending Sept. 30th, 1845--and the amount of receipts for transportation of passengers, tonnage, mails, etc., during the same period.*

HEADS OF EXPENDITURE.	Miles run by locomotives.			Number of passengers carried one mile.	Cost per Passenger per mile.	Cost of conveying passengers.	Number of tons carried one mile.	Cost per ton per mile.	Cost of transporting tonnage.	Aggregate cost of working the road.
	With Passenger Trains.	With tonnage & company's materials.	Total.							
Motive Power by Steam—including actual cost of repairs and renewals of locomotives and tenders (\$40,312 68)—fuel, (6,811½ cords of wood and 5,437-8 tons of coal, including cost of preparation for engines, \$29,464 77)—oil for locomotives and tenders, (6,849 gallons, \$6,061 36)—cotton waste, (6,807 pounds, \$330 78)—and wages of engine-men and firemen (34,072 78).....	150,572	408,146	58,718	9,155,325 112,595	0-295	\$27,015 32 +6,693 69	11,157,931 119,522	0-656	\$72,227 07 +11,136 64	100,242 47 17,830 33
Motive power by horses—in the streets of Baltimore.....										
Totals and averages of motive power.....				9,967,920	0-373	33,709 01	11,277,453	0-748	84,363 69	118,072 70
Repairs of railway, less cos of repairing breaches (\$313 49) and including decrease in value of stock for repairs (\$706 15)					0-258	23,871 65		0-574	64,705 88	88,577 53
Repairs and renewals of bridges, (less cost of improvements and increase of stock of repairs, the first being \$14,802 11, and the latter, \$3,613 49).....					0-108	9,990 54		0-240	27,080 10	37,070 64
Repairs of depots.....					0-020	1,365 33		0-045	5,056 09	6,921 42
Repairs of water stations, less increase of stock for repairs, \$500.....					0-003	276 50		0-007	749 44	1,026 94
Pumping water.....					0-007	621 20		0-015	1,683 80	2,305 00
Watching bridges.....					0-020	1,800 13		0-043	4,879 37	6,679 50
Repairs and renewals of cars, corrected for difference in value of materials for repairs on hand at the commencement and close of the year, and embracing \$1,970 94 for repairs of coal cars, which item was included in that of "Coal Trade," in the secretary's statement.....					0-119	11,020 36		0-241	97,227 75	38,248 11
Transportation department, embracing salaries of superintendent, agents and clerks, (\$9,071 21)—conductors and brakemen of passenger trains, (\$4,667 59)—burden trains, (\$7,522 85)—labor at depots, (\$5,387 85)—oil and grease for cars, (\$3,457 22)—and contingencies, (\$5,719 12)....					0-118	10,956 49		0-128	24,569 35	35,525 84
General expenses, which embrace salaries of president, secretary, and clerks in secretary's office, office rent, counsel's fees, taxes, insurance on property, etc.....					0-025	2,375 91		0-057	6,440 08	8,815 99
	150,572	408,146	558,718	9,967,920	1-041	\$86,487 12	11,277,453	2-188	246,755 55	343,243 67

## REMARKS.

Besides the tonnage transported above, and for which the company have received pay, there have been hauled of materials for repairs of railway and bridges, and of fuel for locomotives, etc., equivalent to 703,924 tons one mile;—which amount, if added to the 11,157,931 tons hauled one mile by locomotives as above stated, and their sum divided by the number of miles run by locomotives with tonnage, trains, will show the average net load of each engine to have been 292 tons, which is 753 tons greater than the average of the previous year.

There have been carried over the Winchester and Potomac railroad, in the cars of this company, equivalent to 507 420 tons one mile.

The average number of passengers in each train has been 61.

The average charge for the transportation of tonnage 3.106 cents per mile.

2. The average charge for the conveyance of passengers, 3.151 cents per mile.

The average cost for repairs and renewals of locomotives, 7.815 cents per mile run with trains.

The average charge for transportation, exclusive of coal, 3.468 cents per mile, run with trains.

The average cost of running the trains, exclusive of horse power in the streets of Baltimore, has been 58 2-10 cents per mile.

The average cost of running the trains, inclusive of horse power in the streets of Baltimore, has been 61 3-10 cents per mile.

The expenditures common to both passenger and burden traffic, have been divided in the proportion of the number of miles run by locomotives, with the trains of each description; the greater speed of the passenger trains being considered as fully, if not more than equivalent, to the somewhat greater average weight of the tonnage trains.

**JAMES MURRAY.**

**Engineer of Machinery and Repair.**

## RECEIPTS AND EXPENSES.

Received for the conveyance of passengers,	\$291,011 85
" " transportation of tonnage,	350,308 11
" " United States mail,	43,305 00
" " use of main stem to relay house by passengers Washington branch,	33,198 93
" " " " tonnage " "	15,188 29
" " tolls upon Harper's Ferry viaduct,	1,436 89
" " use of cars on Winchester and Potomac railroad,	3,224 48
	<hr/> \$738,603 18
Expended for the conveyance of passengers and mails,	\$96,487 19
" " transportation of tonnage	946,755 55
	<hr/> \$343,242 67
Showing the net revenue to have been,	\$395,360 51
<i>To which, in order to show the same results as exhibited by Statement B, in the 19th Annual Report of the Baltimore and Ohio Railroad Company:</i>	
Add cost of repairs of coal cars, which item is included under the head of "Coal Trade,"	1,970 94
And amount of decrease in value of materials on hand for repairs of railway and burthen cars,	1,067 39
	<hr/> \$398,398 97
Making together an aggregate value of	
And deduct therefrom, extraordinary expenses, as follows, viz:	
Expenditures within the year, for repairs of breaches in the road by freshets, west of Harper's Ferry,	\$313 49
For permanent improvement in bridges, and increase in stock of materials, for their repair,	18,445 00
For increase in the stock of materials for repairs of water stations,	500 00
" " " " " passenger cars,	208 91
For increase in duplicate parts of, and permanent improvements in locomotives,	4,169 03
	<hr/> 23,637 03
Surplus same as shown by statement B, above referred to,	\$374,761 74

\* These expenditures include the cost of conveying passengers and tonnage through the streets of Baltimore, for the Washington Branch road, as well as those of the main stem.



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Connecticut River Railroad Co., under the Act of April 16, 1816.

Capital stock.....	\$1,000,000 00
Increase of capital since last report.....	
Capital paid in, per last report.....	477,156 50
Capital paid in since last report.....	160,753 50
Total amount of capital stock paid in, [see below].....	637,910 00
Funded debt, per last report.....	
Funded debt paid since last report.....	
Funded debt, increase of, since last report.....	
Total present amount of funded debt, [see below].....	167,000 00
Floating debt, per last report.....	25,000 00
Floating debt paid since last report.....	
Floating debt, increase of, since last report.....	175,760 96
Total present amount of floating debt, [see below].....	200,760 96
Total present amount of funded and floating debt.....	367,760 96
Average rate of interest per annum on do.....	6 per cent.

## COST OF ROAD AND EQUIPMENT.

For graduation and masonry, per last report.....	159,046 42
For graduation and masonry, paid during the year.....	132,639 82
Total amount expended for graduation and masonry.....	\$291,685 24
For bridges, per last report.....	18,900 00
For bridges, paid during the past year.....	14,666 99
Total amount expended for bridges.....	33,566 99
For superstructure, including iron, per last report.....	165,388 81
For superstructure, including iron, paid during the past year.....	234,627 97
Total amount expended for superstructure, including iron.....	400,016 78
For stations, buildings and fixtures, as per last report.....	22,055 05
For stations, buildings and fixtures, paid during the past year.....	29,476 88
Total amount expended for stations, buildings and fixtures.....	51,531 93
For land, land-damages and fences, per last report.....	94,831 98
For land, land-damages and fences, paid during the past year.....	52,857 36
Total amount expended for land, land-damages and fences, [including over \$50,000 for depot lands, a large part of which will be realized from sales].....	147,689 34
For locomotives, per last report.....	15,300 00
For locomotives, paid during the past year.....	13,000 00
Total amount expended for locomotives.....	28,300 00
For passenger and baggage cars, per last report.....	4,300 00
For passenger and baggage cars, paid during the past year.....	7,900 00
Total amount expended for passenger and baggage cars.....	11,500 00
For merchandize cars, per last report.....	5,000 00
For merchandize cars, paid during the past year.....	3,190 00
Total amount expended for merchandize cars.....	8,190 00
For engineering and other expenses, per last report.....	27,451 37
For engineering and other expenses, paid during the past year.....	11,310 23
Total amount expended for engineering and other expenses.....	38,761 60
Total cost of road and equipment, [exclusive of interest].....	\$1,010,541 88

## CHARACTERISTICS OF ROAD.

Length of road.....	35.9 miles.
Length of single track.....	28.05 miles.
Length of double track.....	
Length of branches owned by the company, stating whether they have a single or double track.....	2.35, single track.
Weight of rail per yard in main road.....	56 pounds per yard.
Weight of rail per yard in branch roads.....	56 lbs. per yd. [places.
Maximum grade, with its length in main road.....	18, 9 miles in 7 separate
Maximum grade, with its length in branch roads.....	18, 6900 feet in 2 separate [places.
Total rise and fall in main road.....	354 feet.
Total rise and fall in branch roads.....	28 feet.
Shortest radius of curvature, with length of curve in main road.....	900, curve 700 feet long.
Shortest radius of curvature, with length of curve in branch roads.....	714, curve 1300 feet long.
Total degrees of curvature in main road.....	1321.
Total degrees of curvature in branch roads.....	449.
Total length of straight line in main road.....	26 1.8 miles.
Total length of straight lines in branches.....	1 mile.
Aggregate length of truss bridges.....	2170 feet.
Whole length of road unfinished on both sides.....	

## DOINGS DURING THE YEAR.

Miles run by passenger trains, [carrying freight].....	50,825
Miles run by freight trains, [separately].....	1,950
Miles run by other trains.....	750
Total miles run.....	62,525

Number of passengers carried in the cars.....	185,190 1
Number of passengers carried one mile.....	1,309,800
Number of tons of merchandize carried in the cars.....	17,247
Number of tons of merchandize carried one mile.....	198,214
Number of passengers carried one mile, to and from other roads.....	
Number of tons carried one mile, to and from other roads.....	
Average rate of speed adopted for passenger trains, including stops.....	21.6 miles per hour.
Average rate of speed adopted for freight trains, including stops.....	15 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	1,854,575
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile.....	437,925

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron.....	\$2,460 89
For repairs of truss bridges.....	
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-men.....	480 00
For removing ice and snow.....	458 71
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....	
Total for maintenance of way.....	\$4,399 00

## MOTIVE POWERS.

For repairs of locomotives.....	\$1,299 08
For new locomotives to cover depreciation.....	
For repairs of passenger cars.....	242 97
For new passenger cars to cover depreciation.....	
For repairs of merchandize cars.....	247 94
For new merchandize cars to cover depreciation.....	
For repairs of gravel and other cars.....	95 00
Total for maintenance of motive power.....	\$2,884 99

## MISCELLANEOUS.

For fuel and oil.....	4,947 82
For salaries, wages and incidental expenses, chargeable to passenger department.....	5,340 18
For salaries, wages and incidental expenses, chargeable to freight department.....	3,560 19
For gratuities and damages.....	25 00
For taxes and insurance.....	
For ferries.....	
For repairs of station building, aqueducts, fixtures, furniture.....	353 67
For interest.....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company.....	
For amount paid other companies as rent for use of their roads, specifying each company.....	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	541 07
	14,767 84
	21,758 43

## INCOME DURING THE YEAR.

<i>For Passengers:</i>	
1. On the main road exclusively, including branch owned by company.....	39,756 09
2. To and from other roads, specifying what.....	
<i>For Freight:</i>	
1. On main road and branches owned by company.....	16,098 31
2. To and from other connecting roads.....	
U. S. mails, express and rents.....	2,392 56
Total income.....	58,246 99
Net earnings after deducting expenses.....	36,494 56

## DIVIDENDS.

Surplus not divided.....	Road completed in Nov.
Surplus last year.....	Interest paid and due to stockholders on their assessments up to December 1st, 1846.
Total surplus.....	

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges.....	
Buildings.....	
Engines and cars.....	

The foregoing return is for the year 1846.  
 The amount of capital stock, as above  
 is ..... \$1,000,000 00  
 Amount paid in as above..... \$637,910  
 Amount due on old and new  
 shares..... 162,000  
 Amount of stock reserved on  
 account of funded debt.... 200,000

1,000,000 00  
 The amount of floating debt, as above,  
 is ..... 300,760 90  
 Towards the payment of which there  
 is due from stockholders, on the de-  
 mand of the treasurer..... 162,000 00  
 The amount of funded debt, as above,  
 is ..... 167,000 00

To pay which, the company holds 2000  
 shares..... 300,000 00  
 The road has been open for the entire year, only  
 to Northampton, a distance of 17 miles. On the  
 17th of August, it was opened to South Deerfield,  
 about 11 miles further; and on the 23d November  
 the entire road was in use.

The cost of running the road, including all ex-  
 penses as stated above, has not exceeded 35 per cent.  
 per mile run.

No passenger or person on the trains has received  
 any serious injury during the past year. A young  
 woman in Cabotville lost her life by stepping on the  
 road only a few feet in advance of the locomotive.  
 The train was moving slow, near the station, and  
 the usual signals were given.

Erastus Hopkins, E. H. Robbins, Samuel Hen-  
 shaw, James K. Mills.  
 January 28th, 1847.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to  
 1846, INCLUSIVE, may be had Bound, at Sub-  
 scription Price, on application at this Office.

### MISSING NUMBERS OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of  
 Back Volumes of this Journal, will do well to apply  
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One or two COMPLETE SETS of the RAILROAD  
 JOURNAL may be had in a few weeks—or as soon as two  
 numbers can be reprinted—by application to the Editor.

### RAY'S EQUALIZING RAILWAY TRUCK—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly ap-  
 proved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for  
 building the same, from Railroad Companies and Car Builders in the United  
 States, and elsewhere.

The above Truck has now been in use from one to two years on several  
 roads a sufficient length of time to test its durability, and other good qualities,  
 and to satisfy those who have used it, as may be seen by reference to the cer-  
 tificates which follow this notice.

There have been several improvements lately introduced upon the Truck,  
 such as additional springs in the bolster of passenger cars, making them de-  
 lightful riding cars—adapting it to tenders, trucks forward of the locomotive,  
 and freight cars, which, with its original good qualities, make it in all re-  
 spects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York  
 Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills)  
 and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**RAILROAD IRON.—THE NEW JERSEY**  
 Iron Company, Boonton, N. J., are now pre-  
 paring to make Railroad Bars, and are ready to  
 take orders or make contracts for Rails, deliverable  
 after the first of December next. Apply to  
**FULLER & BROWN, Agent,**  
 No. 139 Greenwich, corner of Cedar street.  
 September 18, 1846. 10:30

**LAWRENCE'S ROSENDALE HYDRA-**  
 ulic Cement. This cement is warranted equal  
 to any manufactured in this country, and has been  
 pronounced superior to Francis' "Roman." Its  
 value for Aqueducts, Locks, Bridges, Floods, and  
 all Masonry exposed to dampness, is well known,  
 as it sets immediately under water, and increases in  
 solidity for years.

For sale in lots to suit purchasers, in tight paper-  
 ea barrels, by **JOHN W. LAWRENCE,**  
 142 Front street, New York.

Orders for the above will be received and  
 promptly attended to at this office. 32 1/2

**LOCOMOTIVE AND CAR AXLES.**  
 The Subscribers are now prepared to receive  
 orders for the well known and approved Reading  
 Locomotive and Car Axles—drawn to any required  
 pattern from Bloom Iron only. Address  
**SAM'L KIMBER & CO.,**  
 Willow Street Wharf,  
 Philadelphia, Pa.

**BACK VOLUMES OF THE RAILROAD**  
**JOURNAL** for sale at the office, No. 105  
 Chestnut street.

**A. & G. HALSTON & CO., NO. 4**  
 South Front St., Philadelphia, Pa.  
 Have now on hand, for sale, Railroad Iron, viz:  
 180 tons 2 1/2 x 4 inch Flat Punched Rails, 20 ft. long.  
 25 " 2 1/2 x 1 " Flange Iron Rails.  
 75 " 1 x 1 " Flat Punched Bars for Drafts  
 in Mines. A full assortment of Railroad Spikes,  
 Boat and Ship Spikes. They are prepared to exe-  
 cute orders for every description of Railroad Iron  
 and Fixtures. 11/

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.  
 These Ropes are manufactured on an entirely different principle from any other, and are now al-  
 most exclusively used in the collieries and on the railways in Great Britain, where they are considered  
 to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The  
 plan upon which they are made effectually secures them from corrosion in the interior, as well as the  
 exterior of the rope, and gives a greater compactness and elasticity than is found in any other manu-  
 facture.

Many of these ropes have been in constant operation in the different mines in England, and on the  
 Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines,  
 heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc.  
 Reference is made to the annexed statement for the relative strength and size. Testimonials from the  
 most eminent engineers in England can be shown as to their efficiency, and any additional information  
 required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
 75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with  
 Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	LBS.	INCH.	Tons.
11	4 1/2	13 5	10	21 -	50	15-16	90	
13	3 1/2	8 3	8 1/2	16 -	27	11-16	13 1/2	
14	3 1/2	6 11	7 1/2	13 8	17	9-16	10 1/2	
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-3	7 1/2	
16	2 1/2	4 3	6	8 8	10 1/2	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so  
 that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1724

river, (of which firm the subscriber was late a partner) under the immediat  
 supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently  
 been turned out for the New York and Erie railroad, and the New Jersey  
 Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully  
 solicited.

New York, May 4, 1846. **W. H. CALKINS, and Others.**  
 To all whom it may concern:—This is to certify that the New Haven,  
 Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's  
 patent trucks for the last 20 months, during which time it appears to me, they  
 have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Supt of Power.**  
 I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in  
 use on the Philadelphia and Reading railroad for some time past, under a  
 passenger car.

For simplicity of construction, economy in cost, lightness of material, and  
 extreme ease of motion, I consider it the best truck we have ever used. Its  
 peculiar make also renders it less liable to be thrown off the track, when pas-  
 senger over any obstruction. We intend using it extensively under the passen-  
 ger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] **G. A. NICOLL,**  
 Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Rail-  
 road and Transportation company have used Fowler M. Ray's Truck for the  
 last seven months, during which time it has operated to our entire satisfaction.  
 I have no hesitation in saying that it is the simplest and most economical  
 truck now in use. [Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845. **N. Jersey Railroad and Transp. Co.**  
 This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has  
 been in use on the Long Island railroad for the last year, under a freight car.  
 For simplicity of construction, economy in cost, lightness of material and  
 ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, [Signed,] **JOHN LEACH,**  
 Jamaica November 12, 1846. } 1y19 Supt Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, ignors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GORE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was perched by the extreme heat.

RICHARDS & CROOKHITT.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 3d of June last of A. S. Martin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 U

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 3 to 13 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriam, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
a45 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by L. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars.** The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

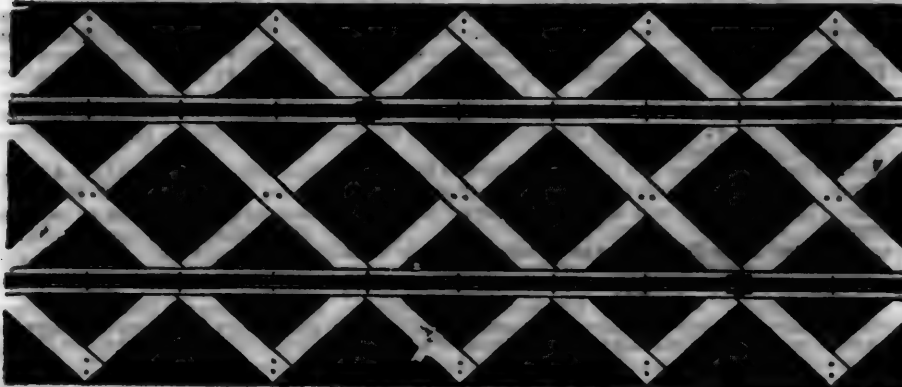


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,324 Timbers, 11 ft. long, 3 x 6 inches =	68,896 ft. b.m., at \$10 = \$688 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,350 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 336

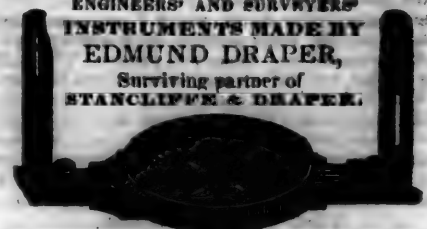
### FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

**D. K. MINOR.**

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia.

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1925

28 Platt street, New York.

### RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works, Maryland.  
Dec. 25, 1925

### ENGINEERS and MACHINISTS.

**THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)**

**J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)**

**TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)**

**ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)**

**S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)**

**NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)**

**FRENCH & BAIRD, Philadelphia. (See Adv.)**

**NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)**

**ROSS WINANS, Baltimore, Md.**

**CYRUS ALGER & Co., South Boston Iron Co.**

**SETH ADAMS, Engineer, South Boston.**

**STILLMAN, ALLEN & Co., N. Y.**

**JAS. P. ALLAIRE, N. Y.**

**PHOENIX FOUNDRY, N. Y.**

**ANDREW MENEELY, West Troy.**

**JOHN F. STARR, Philadelphia, Pa.**

**MERRICK & TOWNE, do.**

**HINCKLEY & DRURY, Boston.**

**C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.**



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 17.]

SATURDAY, APRIL 24, 1847.

[WHOLE No. 566, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7 1/2 a.m. and 3 1/2 p.m., and Providence at 8 a.m. and 3 1/2 p.m. Dedham trains, leave Boston at 9 a.m., 3 p.m., 6 1/2 p.m., and 10 1/2 p.m. Leave Dedham at 8 a.m. and 4 1/2 and 9 p.m. Stoughton trains, leave Boston at 11 1/2 a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2 1/2 p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD and STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.**

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Pawtucket Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton; New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays at 9 o'clock A. M. The Train from Philadelphia arrives at Reading at 12 18 M. The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and \$3 00	
" " Reading, 58		2 25 and 1 90	
" " Pottsville, 34		1 40 and 1 20	

Five minutes allowed at Reading; and three at other way stations. Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East. SUMMER ARRANGEMENT, April 1, 1847.

**PORTLAND TRAINS.** Leave Boston at 7 A.M. and 2 1/2 P.M. Leave Portland at 7 1/2 A.M. and 3 P.M.

**GREAT FALLS TRAIN.** Leave Boston at 5 P.M. Leave Great Falls at 6 1/2 A.M.

**HAVERHILL TRAINS.** Leave Boston at 11 1/2 A.M. and 6-20 P.M. Leave Haverhill at 6 1/2 A.M. and 4 1/2 P.M.

**READING TRAINS.** Leave Boston at 8 1/2 A.M. and 8 1/2 P.M. Leave Reading at 6 A.M. and 1 1/2 P.M.

**MEDFORD BRANCH TRAINS.** Leave Boston at 7 1/2, 11 1/2 A.M., 2 1/2, 5 1/2, 7 P.M. Leave Medford at 6 1/2, 8 A.M., 1 1/2, 4 1/2, 6 P.M.

The Depot in Boston is on Haymarket Square. Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1 ly 31 CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M. " Middletown at 6 1/2 A.M. and 5 1/2 P.M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't, March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 8 1/2 a.m., and 4 1/2 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2 1/2 p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6 1/2 p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't

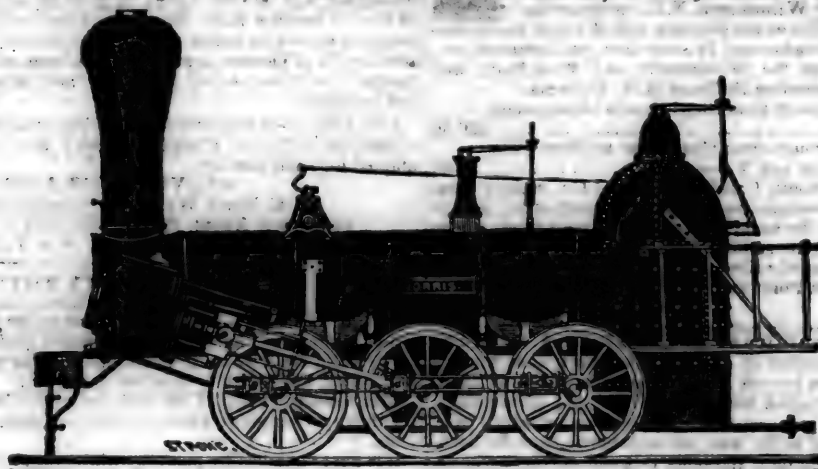






# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
" 2,	14	"	"	× 24	"
" 3,	14½	"	"	× 20	"
" 4,	12½	"	"	× 20	"
" 5,	11½	"	"	× 20	"
" 6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

**NORRIS, BROTHERS.**

**KEARNEY FRIE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

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Peter Cooper, } New York.  
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J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
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25,000 to 30,000 made weekly. 36

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia. 28th

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, lace, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x39 ft, with lathes, work benches, Work shop, 86x36 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

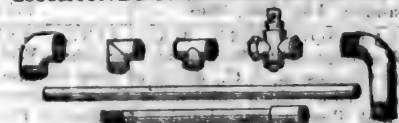
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**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT-IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FIRES.



Manufactured and for sale by

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**PHILADELPHIA.**

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Pipes, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

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**PATENT INDESTRUCTIBLE WATER**

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 113 Fulton street, New York.

**J. BALL & CO.**



## SWAMPY LAND RECLAIMING LAND IN HOLLAND.

The following is from the London Mining Journal for February 20th:

The paper read was a continuation of that which was brought forward at the last meeting by Mr. G. E. W. Jackson, Assoc. Inst. C. E. He gave an "account of the mode of gaining land from the sea by polders, and the art of building with fascine work as practised in Holland and Germany."

The paper commenced by reference to the works of Mela, Weibeking, Spanzia, Caland, Hyde Clarke, and others, as having given the best known accounts of Dutch water constructions and the situations of these labors. It then described the "polders" as being tracts of land recovered from the sea by the construction of a belt of dykes, gradually raised to above the water level, and then pumped dry, by which means they were still rendered habitable, the level of many of the more ancient being beneath that of the sea. When thus reclaimed, they form the finest sand, and produce for many years immense crops, almost without the application of manure. The usual construction of these dykes was described to be by sinking successive layers or beds of fascines or faggots of almost 30 in. thick, by from 8 to 16 yards in width, and of proportionate length, weighted with gravel and stones, mingled with clay, seaweed, and silt. These layers were continued until they reached above the sea level, when the top was constructed of more solid materials, and sometimes capped with a flooring of brick work, as the public roads were formed upon them. The difficulties of the usual construction of the larger and of the smaller dykes of various forms and heights were fully described, particularly entering into the details of the dimensions and quantities of the materials employed, and the precautions to be taken for the delicate operation of closing the last portion of each dyke, which, unless skillfully conducted in proper weather, frequently hazards the safety of the whole work.

The different kinds of lock gates and sluices used for facilitating the outflow of the land waters, and preventing the ingress of the sea, were fully described, and drew from several members accounts of balance and other gates of peculiar construction used in Holland and elsewhere. The original kind appear to have been the self-acting balance gates of unequal surface, so placed upon pivots, that on the rising of the tide, they closed, and remained so, until, on the receding of the tide, the weight of the accumulated land waters forced them open. Recently, machinery has been employed for opening and shutting these gates, and the ordinary lock gates have generally been adopted, and it was found that they were frequently prevented from shutting by some floating matter getting between the mill-locks, and great leakage ensued. The general details were then given of the method adopted for the subsequent drainage of the polder lands, the separation of the springs, the upland and lowland waters, and the methods of conducting them out to sea. The slopes of the faces of the dykes vary considerably. Some of the low dykes are in section

of the form of an arc of a circle of 6 to 10 ft. cord, 10 in. to 1 ft. versed sine, covered with fascine matting staked down upon a clay bed. Others have a base of 19 ft. wide and 5 feet high, of a triangular section, also made of fascines and stakes, secured by hurdles and wattling, with clay, peat, sea shells, and sand, well rammed in, and then covered with turf. Others are formed of rows of piles 16 ft. long, with their heads 6 or 7 ft. above the shore, joined longitudinally and laterally by wailing timber, filled in and around with fascine beds, and weighted with stone. Baskets filled with sand are also used in certain situations, as well as various modifications of all these kinds of protections. It was stated that these constructions were found to succeed better, and last as long as stone, being at the same time about half the cost; and in the discussion which ensued, this statement was confirmed even for some parts of England, where stone was not expensive.

Our limits will not permit a more extended notice of this excellent paper, of which it was justly said by one of the speakers that "it is the first detailed account in the English language of some of the most interesting hydraulic works of Holland."

## The "Air Line" Again.

The Boston Times, after the last severe storm, appropriates a column to the subject of a railroad from New York to Boston, and amongst other arguments, pressing the matter upon the consideration of its readers, the editor remarks:

"We have now been without a mail from New York and the South for two days in succession, a misfortune by which publishers, merchants, and all interested in the regular transmission of intelligence, are put to serious inconvenience and loss. This is not a solitary instance of disappointment and embarrassment. The same derangement of business has occurred frequently during the past winter and present spring; in fact, we do not recollect a season in which the mail failures have been so frequent; and the active state of business and the interesting position of our national affairs have rendered these interruptions to the regular transmission of commercial data and news peculiarly unfortunate now. The worst of it is, there is no fit fault to find with any individual; and had there been, it would have been a great relief to the overcharged feelings of a disappointed editor to launch some of his *brutum fulmen* at the head of the offender. But the elements have conspired against us, and made a Russian campaign of it.

This fact strongly establishes the imperious necessity of forming some line of communication, between New York and Boston, which shall be independent of the weather at all times; a route over which the mail and passengers may be despatched with safety and speed, blow high or blow low. The "Air Line" so called, from Boston to New York, a petition for the charter of which is now before our legislature, seems imperatively demanded by the wants of the public, and would undoubtedly supply all the deficiencies of which they have had so frequent and just cause to complain. The advantages of this

route are so obvious that the strenuous opposition made to it by interested individuals and corporations justly incurs the censure due to selfishness and illiberality. It would ill become the legislature of Massachusetts, after granting so many railroad charters as they have, to discountenance so grand and praiseworthy a scheme, a plan in which the mass of the community are favorably interested, because it happens to conflict with the money-making schemes of certain individuals. We look for a more liberal spirit of legislation from the Old Bay State and are convinced that it will prevail.

## RAILWAY SHAREHOLDER'S MANUAL.

We find, in the Railway Chronicle, the following notice and extract from a work of which we have heard much—and which we should like well to see.

The extract alluded to we give at length, as it shows so conclusively what has been accomplished by the introduction of railroads.

"The Railway Shareholder's Manual. By Henry Tuck. Eighth Edition.

"Eight editions of a book in less than two years is a sufficient evidence of its merits and usefulness. Mr. Tuck's Manual keeps pace with the increase of railway affairs; and after a careful examination of this present edition, we are happy to say that, considering its compass, it leaves us nothing to desire. We find in the preface some remarks which are worthy of repetition:

"But if railways are monopolies, what is to be said of canals? and yet at no time has there been a word uttered against these undertakings. The present inland navigation in Great Britain by means of canals, is estimated to be about 2,500 miles. Up to the introduction of the railway system, it afforded almost the exclusive means of conveyance of heavy goods and merchandise, from one part of the country to another, and especially from the principal manufacturing districts to the outports. Many of these undertakings have yielded an enormous return on the capital expended, and at the present time the Grand Junction canal pays a dividend of 7 per cent., the Melton canal 12 per cent., and the Oxford canal a dividend of 26 per cent., and neither the Times nor 'Cato' have held this to be a monopoly, or an inordinate profit. Notwithstanding, such is the advantage of the railway system, that the goods traffic is progressively being transferred to the railways, in every part of the kingdom."

"The effect of railways on canal charges are thus stated:

"The distance between Manchester and Hull is 99 miles; before the railway was opened, the chief traffic was carried on by canals. The freight for corn and flour was 24s. per ton, cotton twist 32s. 6d. per ton, and manufactured goods 45s. per ton. The Manchester and Leeds railway now carry corn and flour for 13s. per ton, cotton twist for 30s. per ton, and manufactured goods for 24s. per ton. On the Trent and Mersey canal, the freight for coal was 1s. 2d. per ton per mile; it is now reduced to one-half penny per ton per mile. The following tables of reduced tonnages in the Midland district are equally interesting:

*Statement of reduced tonnages on canals, showing the advantage which the public have derived by competition between railways and canals.*

Tonnage on the undermentioned lines of canal.	Rate which they were entitled, under their acts to charge, and which they did charge.	Reduced since 1836 to
<b>Grand Junction, 97 miles:</b>	£ s. d.	£ s. d.
On sundries.....	0 16 34	0 2 04
On coal.....	0 19 1	0 2 04
<b>Grand Union, 24 miles:</b>		
On sundries.....	0 6 0	0 0 54
On coal.....	0 2 11	0 0 54
<b>Union, 19 miles:</b>		
On sundries.....	0 4 9	0 0 54
On coal.....	0 2 1	0 0 54
<b>Leicester, 16 miles:</b>		
On sundries.....	0 2 6	0 0 4
On coal.....	0 1 2	0 0 4
<b>Loughborough, 10 miles:</b>		
On sundries.....	0 2 6	0 0 4
On coal.....	0 1 2	0 0 4
<b>Erewash, 11 miles:</b>		
On sundries.....	0 1 0	0 0 4
On coal.....	0 1 0	0 0 0

London to Leicester by canal is 139 miles; London to Birmingham by canal, 144 miles; Whole tonnage from London to Leicester, 2s. 10½d.; whole tonnage from London to Birmingham, about 7s.

Inland Canals.	Present cost by canal.	Cost by railway.
<b>Coals:</b>	£ s. d.	£ s. d.
Melton Mowbray to Stamford.	0 9 0	0 2 7
do. Uppingham	0 7 0	0 3 5
do. Oakham...	0 3 0	0 1 2
<b>Corn:</b>		
Stamford to Melton Mowbray.	0 10 0	0 3 0
Oakham to do.	0 5 0	0 1 7

"Here is sufficient proof of the vast superiority of railways over canals in merchandize traffic, without adverting to the advantages possessed by railways for the conveyance of cattle, live stock, fish, fruit, milk, vegetables, and other perishable commodities; but when we take into consideration the immense passenger traffic, that has been called into existence since the introduction of railways, it is obvious that nothing but the most absurd prejudice, the most stupid obstinacy, or the most corrupt venality, can be opposed to the railway system."

#### Foreign Items.

**Improvements in Locomotives.**—Several experimental trips with the first of a class of narrow gauge engines, the patents of which propose by them to secure greater safety and greater speed on the narrow gauge, have been made upon the London and North Western railway during the last three or four days. The locomotive in question is one of Mr. Crampton's in whose practical knowledge much reliance has been placed by the narrow gauge party for the production of a locomotive that shall possess both of the excellencies we have mentioned—viz, increased speed and power, and increased safety. The latter, as we shall show, appears to have been secured by the engine, the working of which we are about to notice. With respect to the speed the evidence is not of so positive a character; but it would be exceedingly unfair to draw any inference on this point from the details given below, and for the very plain

and simple reasons that are appended thereto. The engine alluded to is called the *Namur*, and has been made by Mr. Crampton for the Namur and Liege company. It is a six wheeled engine, with 7 ft. driving wheels.—One of the greatest hindrances which have heretofore presented themselves to the attainment of high speed upon the narrow gauge has been what is called the back pressure in the cylinder. This pressure is in proportion to the diameter of the blast pipe by which heated air is drawn through the tubes of the boiler, and the number of revolutions made by the driving wheels. To remedy this, Mr. R. Stephenson increased the diameter of the driving wheels of his outside cylinder and long-boiler engines to 6 ft.; then to 6 ft. 6 or 7 in.; and on Tuesday we saw, at Wolverton, a locomotive made by that eminent engineer and manufacturer with driving wheels 7 ft. in diameter. But we may very fairly doubt whether Mr. Stephenson, in thus increasing the diameter of his driving wheels to 7 ft., has not aimed at speed at the expense of safety. Without pretending to accuracy, we may venture to assert, that the 7 ft. driving wheel engine we saw on Tuesday had a height of nearly 9 ft. between the rail and the top of the boiler. Upon a road in perfect order, such a height of boiler might not be very objectionable at 60 miles an hour—that is, supposing this class of engine to possess sufficient power to run at that rate with moderate heavy trains; but we think there are few locomotive superintendents who would be perfectly at ease when riding upon such an engine at such a rate over the best laid and most vigilantly watched narrow gauge line in the kingdom. To obviate this difficulty of back pressure, Mr. Crampton has carried the axle of his driving wheel behind his fire-box; and as he uses outside cylinders, he can increase the diameter of those wheels without raising the height of the centre of gravity. For instance, while Mr. Stephenson's 7 ft. driving wheel engine has the top of the boiler 8 ft. 9 in. from the rail, Mr. Crampton's engine, with a similar driving wheel, has the top of the boiler about 6 ft. 9 in. only from the rail—that is, the centre of gravity in the one is 2 ft. lower than it is in the other. In this respect Mr. Crampton, we repeat, appears to have succeeded; for his engine, at the greatest speed attained by it on Tuesday, was remarkably steady—as steady as any engine we have ever noticed on the broad gauge. It would seem, therefore, unless it be contended that an engine with the driving wheel behind is less safe than an engine with the driving in the centre, that Mr. Crampton has attained one of his objects—viz, a large driving wheel with perfect steadiness, and a low centre of gravity. Mr. Crampton also seeks to effect as large an available reduction of back pressure as possible, by diminishing the thickness of the layer of coke in his fire box, and increasing the area of the fire bars. His theory is, that by thus lessening the thickness of the layer of coke, he is enabled to do with less draught, and can consequently increase the diameter of the blast pipe to its maximum size.

With these explanatory observations, we shall proceed to notice the working of the *Namur*. The engine was attached to the 12 o'clock train from Euston square. The train consisted of 9 carriages, weighing nearly 50 tons. Between Euston square and the 11th mile post, the speed was, upon a rising gradient of 1 in 350, 40 miles per hour. Between this station and Boxmoor, the next place at which the train stopped, the axle of the tender became very hot, and the speed of the engine was reduced; the rate, however, reached was 52 miles per hour, on a gradient of 1 in 1056. The train, notwithstanding that the steam had been partly shot off, arrived at Boxmoor 6 min. 30 sec. before its time. Here the axles were found to be still hot, and the driver was instructed not to run the engine at full speed. The speed was consequently below the capacity of the engine; but at her reduced power she made the Leighton station 10 min. 46 sec. before her time—that is, she made this time between Boxmoor and Leighton—because although the train reached the former station 64 min. too soon, it did not leave the place till the moment marked down for the guidance of the station master. With axles still hot, the train left Leighton at the correct time, and arrived at Wolverton 8 min. before time, having reached a maximum speed of nearly 57 miles per hour. The steam was blowing off nearly the whole of the journey.

The *Namur* is stated to be 40 per cent less in power than a large class of engine now in the course of construction for the London and North Western company, under Mr. Crampton's superintendence. This engine, will, we believe, have 5 per cent more power than the best engines at present on the narrow gauge lines—in safety, we should imagine it will be superior beyond all comparison. We have now to ascertain what the *Namur* will do when it gets into good working order, and has no drawbacks of hot axles, and the circumstances attendant upon the working out a new arrangement like Mr. Crampton's. The first trip taken by the above engine was on Saturday last. On that occasion she was attached to a special train to Tring, in order to enable the directors of the Namur and Liege company to form an opinion of her working. Among those who went down were Mr. A. Spottiswoode, the chairman of the company; Mr. J. Gurney, the deputy chairman; Mr. A. Grey and Mr. F. Reynolds, two of the directors; the secretary, Mr. Cary; the engineer, Mr. G. Rennie, the patentee, Mr. Crampton; and the manufacturer, Mr. Tulk.

We look with anxiety for the working of Mr. Crampton's engine, when it shall have got into thorough running order.

**Atmospheric Railway.**—The atmospheric principle was tried yesterday for the first time. The piston carriage started from the Exeter station a little after 6 last evening. There were present Messrs. Samuda and Atkinson, the Atmospheric engineers, Mr. Magary, the resident engineer, Mr. Clark, the superintendent of the line, Mr. Marshall, the contractors' agent, Dr. Miller, Mr. Ralph Sanders, etc. The piston carriage was attended by a loco-



motive, which propelled to the pipe at starting. An exhaustion of 17 inches was readily obtained, 14 being a working pressure.—Every thing was found to answer exceedingly well. The carriage stopped at the St. Thomas's station with great precision. It was perfectly under command, and the oscillation was comparatively nothing to that of the locomotive. The experiment was very cautiously effected, in consequence of the pipes never having yet been thoroughly gone thro'. But it fully answered the expectations of all concerned, and must have been very gratifying to the patentee, Mr. Samuda, and to Mr. Atkinson, who has had the chief management of the preparations. The inventor, Mr. Clegg, was not present, we believe. He ought not to be forgotten in the triumph of a principle which has cost him years of labor and anxiety, though younger and more influential hands have taken the burthen and the glory of its full achievement.—*Western Times.*

**India Rubber Buffer Springs.**—An application of what is termed "Vulcanized India rubber" to the springs of buffers of railway carriages has been patented by Messrs. Fuller and De Bergue, and is in use in some of the carriages of the Great Western railway and on the Eastern Counties railway. The invention appears to be important, and it is stated to have been examined and approved of by Messrs. R. Stephenson, W. Cubit, Brunel, and other competent judges. The buffer springs of Messrs. Fuller combine simplicity with security; and the inventors contend that they are superior to the steel springs usually employed in buffers, because they are at their commencement more elastic and more easily acted upon; the power of their resistance, after yielding to a certain extent, increases in such a ratio as to prevent the possibility of the buffer head being brought to a dead hard stop, and consequently in cases of collision results less dangerous than those which generally ensue can be anticipated. Their lightness, and the facility with which their power may be regulated, are also important advantages. It is difficult, without an experienced judgment, and the practical knowledge of engineering, to give an opinion on such an invention as this that shall be either valuable or influential, but it may be of benefit to the public to call their attention to it.

**Tires "without welding," for Locomotives.**—The following suggestions, elicited by the opinions expressed by Messrs. Gooch and Braithwaite, at the inquest as to the cause of the late fatal accident on the Great Western, deserve attention:—"I have for several years given considerable attention to the subject of the manufacture of iron for locomotive carriages and other purposes; and I am convinced, from partial experience, that tires for locomotive carriages should be composed of one entire circle without welding. These tires should be constructed from scrap iron, which, after reworking, forms a material superior in texture and strength to the quality of iron now used, while the cost of manufacture would not exceed the present method.—As I am in possession of the plan by which such an improved mode of tire can be con-

structed, I shall feel obliged if you will give these imperfect remarks a place in your valuable columns, as I am thoroughly satisfied that if the suggestion to which I have alluded be generally adopted in the manufacture of wheels for locomotive carriages, similar accidents to that which lately occurred on the Great Western may be prevented, and thus a great loss of human life be spared.—Geo. Soott, Engineer; *Bouverie street, Feb. 16.*" We are informed also, that Mr. W. Exall, of Katesgrove iron works, Reading, has turned his attention to this subject, and succeeded so satisfactorily, as to be induced to secure his invention by a patent, which he anticipates the recent accidents will bring into general use. We shall readily afford both parties space for a description of their relative plans.

**Smelting Copper.**—Mr. T. Bell, of the Don Alkali Works, South Shields, has recently patented an improved process for obtaining sulphuric acid from the ores of copper during the roasting of the ore. For this purpose the ore in powder is placed on the shelves or a common roasting furnace, such as is in general use in the smelting of copper ores. To this furnace a roasting kiln is attached by a flue, which enters 2 ft. from the bottom, and is from 150 ft. to 200 ft. in length; in the kiln copper ore is also put, but in lumps near the end of the flue there is a jet of steam, which, adding to the draught of furnace, coke, anthracite coal, or charcoal, may be used instead of bituminous coal. The top of the kiln is arched over, and a flue passes through the top into a vitriol chamber. Near that end of the flue which enters the vitriol chamber, the steam jet passes into the centre of the flue. During the roasting of the ore sulphurous acid is formed, which, in passing through the flues is mixed with the aqueous vapor, and partly becomes condensed into sulphuric acid; in this state it passes into the vitriol chamber, and collects on the floor; at the same time, the uncondensed sulphurous acid gas and steam, on passing into the vitriol chamber, meet with the nitrous acid gas, produced by acting on saltpetre, or nitrate of soda, by strong sulphuric acid. But still, much of the sulphuric acid escapes condensation; this is afterwards condensed in columns of coke, previously exhausted as described in a former patent (dated November 3, 1845, for improvements in the manufacture of sulphuric acid), or by means of a high chimney. The claims are for the use of coke or charcoal in obtaining sulphuric acid from copper ores, in the manner above described; and also for using the columns of coke in combination with exhaustion, in the manner above described.

**Experiments on the Atmospheric Railway System in France.**—A few days ago experiments were made on the Paris and St. Germain Atmospheric line, between the stations at the wood of Vesinet, and the park at the chateau, in the presence of several members of the legislature, engineers, and others interested in the atmospheric system. A train containing the visitors, left the Paris station, Rue St. Lazare, at a quarter past 11 o'clock,

and arrived at Vesinet at 40 minutes past. The signal to set in motion the stationary engine at St. Germain was sent by the electric telegraph, laid down under the direction of M. Breguet. A vacuum of 32 centimetres were then effected in 2 minutes 30 sec.; and a train composed of five carriages, besides that containing the piston, started off with speed. The ascent to St. Germain was accomplished in four minutes, the average speed being therefore 33 kilometres per hour. The vacuum increased during that time from 32 to 43 centimetres. Five other trains successively ran at intervals of three-quarters of an hour, the number of carriages being increased every time until it reached 11, exclusive of the piston carriage. Every time the results grew more and more favorable. The last train, the heaviest of all, and the weight of which was 54 tons, performed the ascent in no more than four minutes, under the influence of a vacuum varying from 32 to 65 centimetres. The vacuum of 32 centimetres was always obtained in two minutes and a half, with but one machine. The four pneumatic cylinders were worked for only two minutes, and that solely when the train began to ascend the gradients of 32 and 35 millimetres, which terminate the line; trains of 9 or 10 carriages ascended in three minutes and a half, under the influence of a vacuum varying between 35 and 50, and even 65 centimetres. This last degree has never been surpassed in England. The next experiments will take place before the commission appointed by the Minister of Public Works, to present a report on the atmospheric system.

**Causes of Railway Accidents.**—The following letter, from our esteemed correspondent, "Nauticus," appeared in the Times of Thursday: "In your account of the fatal accident on the Great Western, it is evident that the direct cause of this accident was the insufficient manner in which the tire of the driving wheel was secured 'to the ring of it,' the only security being that of the tenacious gripe acquired by the iron in cooling, caused by the contraction of the metal, it being 'chilled' on to the ring of the wheel, 'just as in the construction of an ordinary wooden wheel.' It appears that Mr. Gooch has a patent for this mode of constructing the tire of railway carriage wheels. Now, I think you will agree with me, that Mr. Gooch in proposing, and Mr. Brunel in giving his sanction to, this mode of securing the tires to the wheels of railway carriages, have, to use the mildest term, acted indiscreetly, and without giving the matter proper consideration; because the only security given to the tire to retain its position firmly on the 'ring of the wheel,' is obtained, as I have just stated, by its contraction in cooling; and when the wheel is rapidly progressing along the rail, great heat is generated by the friction between them; therefore the tire again expands, and, consequently, the firmness of the grip with which it embraces the ring of the wheel is relaxed, the too certain result being that, on any oscillation occurring to create a lateral thrust on to the flange, the position of the tire on the ring of the wheel is changed, and the fric-





Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. E. MINOR, 105 Chestnut St., Philadelphia.

Saturday, April 24, 1847.

Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

Table of Railroads—Corrections.

MONTGOMERY, ALA., April 3, 1847.

Sir—In your late list of railroads, you have given our road a bar  $\frac{1}{2}$  by 2 inches—it should be  $\frac{1}{2}$  by 2. Our maximum grade is 52 feet—only one grade of that acclivity—the general maximum is 42 feet. On the extension, beyond Moore's, we shall use a modification of the flat bar, having  $\frac{1}{2}$  inch thickness, and weighing 40 tons to the mile. We expect to open the road for use to Auburn in July. The length will then be 60 miles.

Respectfully yours,

L. P. GRANT,

Engineer and Sup. M. and W. P. R. R.

Will others do likewise? This is the way to make the table correct, and the only way for us to get at the present state of many of the roads.

Portland, April 14, 1847.

To the Editor of the R. R. Journal:

Dear Sir—I take the liberty to send you the following items for your Table of Railroads, as corrections:

Atlantic and St. Lawrence Railroad.—Track 5 feet 6 inches wide (i.e. gauge.) Kind of rail  $\frac{1}{2}$  (i.e. bridge rail). Weight of rail, 63 lbs. to the lineal yard. Highest grade per mile, 45 feet.

Your table is a most valuable document. I have posted it up in a conspicuous place in our office. I hope, before you have occasion to publish another edition, we may be able to furnish you a better account of ourselves.

With great respect sir,

Your very obedient servant,

WM. P. PREBLE.

We hope to be able to continue these corrections, until we hear from every road in the country.

Bridging the Ohio.

The Ohio is in a fair way to be bridged; we hear, at Wheeling, Va. One of the papers of that city, of a late date, says that circumstances are such as to give us full assurance that the company will be formed under the charter of last winter to erect a bridge over the Ohio, the stock taken, and the contract made at as early a day as possible, probably during the present summer. The stock is \$200,000.

Large Iron Shafts.

The Louisville Democrat says that, at Yeatman & Shields' foundry, in that city, there are two iron shafts just cast for the steamboat Magnolia, weighing each 11 tons—each 20 feet 2 inches long. The journals measure 13 and 17 inches. The shafts were perfect, and made in three days from the time the order was received; the patterns, of course, be-

ing made in this time. They are the largest shafts ever cast in that city.

Rutland Road.

The work upon this road, says the Burlington Free press, is steadily advancing. It is understood from the contractor, that several pits have been sunk at the crossing of the creek in Shelburne, preparatory to the commencement of the work of constructing the piers for the bridge at that place.

We are glad to learn that, by an arrangement between the parties, Messrs. Chamberlain, Worrall and Walker, have become partners with Messrs. J. Bradley and T. F. Strong, in the contract for the construction of the road from Burlington to Brandon. Messrs. Chamberlain & Co. have been engaged on the public works in Pennsylvania, and are now constructing the ship canals on the St. Lawrence in Canada. Their reputation, as accomplished and thorough-going business men, and their well-known experience and ability, afford the best guaranty for the speedy and successful prosecution of the work on the northern division of the Rutland road.

A contract has been entered into with Mr. Horace Gray of Boston, for the rails for the whole road from Bellows Falls to Burlington. Mr. Gray takes stock to the amount of \$140,000, in addition to his subscription of \$20,000, and furnishes rails (of 60 lbs. to the yard) on terms more favorable, as we are informed, than have heretofore been made with him.

The assessment of 5 per cent. on both the Boston and the country stock, has been promptly paid into the treasury, and the work will be prosecuted with all practicable despatch.

This goes to show that the opinions entertained and expressed in the Journal by us in the early agitation of this line of road was correct. We then said, frequently, that this road would surely be constructed—that Boston would do it, at her own cost, if the people on its line did not come up to the mark, by way of securing the trade of Western Vermont. It is of too much value, when taken in connection with Lake Champlain, to be lost, when so small an outlay will open so direct and ready a communication.

Hamilton Railroad.

The citizens of the eastern part of Indiana, says a late number of the Cincinnati Gazette, are on the alert, to raise the means for constructing a railway to connect Cincinnati with Indianapolis. In New Richmond a good spirit prevails. They look upon it as certain that the road to Hamilton will be made, and are taking active measures to connect themselves with it, and to push the line forward through the State to Terra Haute, under the charter granted by the Legislature of that State.

The citizens of Darke county have called a public meeting, to be held at Greenville, on the 3d proximo, to devise the way of connecting that town with Eaton, Hamilton, and Cincinnati.

In Preble county also, the subject of the road from Hamilton, on through Eaton to Indiana, is under discussion, and measures are contemplated to further the object.

It behooves Cincinnati, continues the Gazette, to look to the matter in season, in order to secure the road through Indianapolis, to the northwest, and also to St. Louis. The road to Hamilton, must and will be made; but whether it is to be done soon, or to be postponed to a more convenient season—to some future time, depends upon our citizens. If we come forward and take a due portion of the stock, it may be all graded the present season. The stock can be raised if the property holders in the western and northwestern parts of the city take hold of it as

men should do, having in view a public advantage as well as their own private interest. The gain to these gentlemen is certain, and the amount must be large. Their interest, if nothing else, should prompt them to exert themselves to push the work forward, and to set good examples in the way of liberal subscriptions.

We notice that the proposed company to construct a railway from Dayton through Lebanon to the Little Miami road, is about to be organized. A meeting has been called to elect directors.

Railroad Intelligence.

The Danvers railroad to Boston, which has for so long a time been an obstinately contested question, and which has taken up so much of the time of the present and past Massachusetts Legislatures, is likely to be brought to a conclusion. It is rumored that the Railroad Committee to which the subject has been committed, have decided to report in favor of the South Reading route, which bears the name of the Salem and Lowell railroad, giving to the Danvers petitioners an entrance into Boston through the Boston and Maine railroad, though not so straight and short as by the route through Malden. If this report is correct, if the committee's bill shall pass through the Legislature, and if the road shall be built, a most exciting subject of railroad legislation will be taken away, and it is to be hoped that the compromise will be acceptable to all the parties.

We understand, says the St. Johnsbury Caledonian, that the engineers of the Connecticut and Passumpsic Rivers railroad, have been engaged for the last two or three weeks in completing the locating survey of the White River division, and that the whole line will be ready for contracting by the 1st of May as far as Wells river. It is understood that this portion of the road is to be put under contract as soon as the necessary surveys are completed, and the work prosecuted with a view to its completion in the summer of 1848.

We learn from the Portland Argus, that the amount of stock taken by the citizens of Portland and vicinity in the Androscoggin and Kennebec road, is something rising \$110,000; on which there has been paid into the treasury in cash, something rising \$5,500—being 5 per cent. on the stock subscribed for. At the meeting of the Directors last week, it was ascertained that the preliminary surveys would be completed in the course of the week. The business of the company is placed upon a solid basis, and is progressing as rapidly as circumstances will admit.

The N. Y. Commercial Advertiser says that the stock of the Watertown and Rome, N. Y., railroad has been taken, and adds:—This will be another important link to the eastern seaboard, and will add in no small degree to the value of the Hudson railroad. Our Boston friends are pushing on the line to Ogdensburg, which will be another link to their immense chain of railroads; while they are showing such activity, New Yorkers should be awake to their own interests.

Within the last two years the passengers transported between New York and Boston were conveyed at an average cost, for first class passengers, not exceeding a cent and a half per mile. So says the Boston Daily Advertiser.

The Housatonic railroad company have declared a dividend of four per cent. on the preferred capital.

At the last advices, the workmen had nearly completed their labors on the Paris and Havre railway, and it was expected that the commission of roads and bridges charged with inspecting the entire railway and with making a final report on the state of

the work, would enter upon their duties on the 4th of March. There was every expectation of a favorable report, and that no obstacle would delay active operations, which would commence simultaneously for the conveyance of persons and property, the company being ready at all points, and wanting nothing but authority to proceed. The inauguration, it was thought, would take place March 15th, or at farthest before the end of the month.

The Portsmouth Journal says—We have much pleasure in being able to announce that the balance of the stock required to be subscribed before commencing the first section of the road to extend to New Market has been taken up—the directors having assumed the balance, (although they were before the largest subscribers) to enable them to commence the work forthwith. We also learn that an experienced and skilful engineer, Mr. Hall, is now engaged in making a re-examination and survey of the line as laid out to New Market; and that as soon as the road is finally located, probably in the course of next week, the directors will be ready to enter into contracts for grading the road. The first assessment on the shares has been made payable on or before the 26th inst.; interest to be allowed from the day of payment, and some have already paid their assessments.

The Columbus (Geo.) Times of the 22d ult., says. We learn that engineers of the Macon and Western railway, are surveying the route from Barnesville to Flint river; and that that go ahead company intend to complete the new road in a year. If so, Columbus must suffer in her trade every day that our end of the line remains unconnected with that at the Flint.

The Directors of the Atlantic and St. Lawrence road have ordered the location to the South Village in Paris. They have also ordered the section between Auburn and Mechanic Falls to be put under contract for grading forthwith.

Our Portland friends, says the Paris Democrat, anticipate that the "iron horse" will come snorting into their beautiful city from the northeast, as early as November next, and we have little doubt their anticipations will be realized. Success to them.

It was stated by S. S. Lewis, Esq., says the Boston Bee, at a late meeting of the company, to one of the legislative railroad committees, that the plan of constructing a railroad partly around the metropolis, so as to connect all the interior railroads with deep water at East Boston—was so far matured that he had already received the promise of subscription for a large part of the capital stock, \$1,200,000. The Chelsea Branch railroad is a part of this line, and the Eastern railroad has applied for leave to subscribe for a portion of its stock. We published an article in relation to this matter from a Lowell paper, some weeks since. It would seem from the above, that there is considerable probability of the accomplishment, eventually, of such an enterprize. The project goes to show the great principle of improvement, lately brought out so clearly, that the interior demands connexion, not merely with commercial towns, but with the sea itself. Deep water is almost as necessary a terminus of a great railroad, at one end, as a productive and populous country is at the other.

The railroad spirit shows no abatement, says a late Newark paper, in the hills and villages on the Delaware. Four public meetings are advertised to be held in different villages of Warren county, between this day and Monday, to consider measures for making a railroad communication between Belvidere and the sea board.

#### Another "Mammoth" for the Sound.

A magnificent new boat, to be called the "BAY STATE," is now in course of completion, in New York, intended to ply on the new route to Boston, via Fall river. She was constructed by Messrs. Lawrence & Sneyden, under the immediate superintendence of J. J. Comstock, formerly the commander of the Massachusetts, and is 300 feet in length, 45 feet beam, with 15 feet depth of hold; her cylinder is 76 inches, 12 feet stroke; diameter of wheel, 43 feet; 1,700 tons burthen and 1,500 horse power. Her engine and boilers are from the foundry of James P. Allaire. She is furnished with 50 state rooms and 500 berths, fitted up in splendid style, and the safety of the passengers is secured by extra life boats and patent life preservers, besides having three masts, on which she can use her canvass when necessary. This floating palace will take her place on the line about the 1st of May, under the command of Capt. Comstock, whose reputation as a skilful navigator and for gentlemanly deportment, is well known to the travelling community. The Massachusetts will run on alternate days with this boat—which is said to be a splendid affair—and promises to be one of the finest ever built in this country.

#### Plank Roads.

We published, in a recent number of the Journal, a well written article from the pen of JAMES CULL, Esq., Civil Engineer, of Kingston, Canada West, in which he promised to give us another article, treating at length of Plank roads—and we now have the pleasure of acknowledging the receipt of the article alluded to, which we give at length in this number, in the hope that it may be copied into many of our exchange papers, for the benefit of thousands who cannot have the advantage of railroads. They must be eminently useful to villages, and in the new country where the soil is deep and soft—and not, comparatively, expensive.

We desire to call the special attention of our readers to Mr. Cull's remarks on the subject, and to him as a suitable person to be employed in their construction, as he has evidently both science and practice in this almost new science of road-making.

For the American Railroad Journal.

**Plank Roads.**—The adoption of plank and timber roads was first recommended by the writer of this article, accompanied with models, and laid before the Canadian Provincial Parliament, in the year 1833.

The models were of three descriptions.

First. The common plank road, 14 feet wide and 3 inches thick, laid upon five longitudinal sleepers. Second. A plank road 28 feet wide, and which combined the two objects—of a plank road for ordinary purposes, and a railroad, the rail being of hard wood, with or without an iron rail.

Third. A timber road made with logs, as will be hereafter described. Having been employed upon the Liverpool and Manchester railroad in England, and which was just completed, and having had frequent opportunities of testing the value and durability of timber railroads, called tram roads, I had necessarily acquired a good deal of information upon the comparative advantages and disadvantages of both these descriptions of roads.

The ordinary plank road was treated with everything but respect by the Canadian Legislature at that time of day. It would rot, or wear out in three years. It would be burnt up. The plank would be stolen. The expense would ruin the country; and the whole thing was treated as the fanciful production of a speculative mind—and not a few of the wise men said the old roads had been good enough for their

fathers, and why were they not good enough for them? No effort was made to try the value of plank roads till the summer of 1835, when three or four miles were laid on the road between Toronto and Kingston, and paid for out of a loan granted by Parliament to make a Macadamized road.

It was soon found that none of the anticipated objections were realized. Instead of wearing out or decaying in three years, no repairs were made for upwards of seven years, and even then the plank had lost by wear only about three-fourths of an inch, not a foot of it had ever been burnt or stolen; and as little grading was necessary, in consequence of the level state of the country, instead of costing upwards of £2000 per mile, which the first four miles of Macadamized road had cost, the plank road was made for between £500 and £600 for the timber portion of it, and about £150 for the grading, ditching, etc. This was the first experiment of a plank road.

The plank was partly pine, partly hemlock, and partly oak. The first four miles of Macadamized road out of Toronto, which had cost in its original construction upwards of £2000 per mile, had also cost an enormous sum in repair, nearly as much as it cost originally, in four years, in consequence of the commissioners having employed one of the foremen of the engineers, who made the Youngs street road—with a view of saving £24 per day in salary—a man who was ignorant of the science of either draining or road making; the consequence of which was, that the road went down in many places, and they were actually obliged to plank over it—exhibiting, if anything ever did, the old adage of "penny wise and pound foolish."

The writer had frequent opportunities of examining these few miles of plank road, and so completely caulked were the joints, by the pressing into them by the action of the wheels and the feet of the horses, the small chips which were torn off, together with the dropping from the horses, etc., that a strong iron bar was broken in taking up the boards to examine them. The only fastening they had was one, or in a wide plank two 6-inch spikes at each end of the plank. The scantling for the sleepers, which were of the same material with the plank, was 6 by 8. The road bed was made as solid as possible, and the earth was rammed in between the sleepers; and experience has since proved, that on this being effectually done, so that the plank rested firmly on the earth, as well as on the ground joists, depended the protection from decay of both, and the absence of springing, by which the wear is much increased, a fact fully proved by the rapidity with which plank on a bridge wears out, compared with that of a firmly laid plank road: although it must not be forgotten that from bridges being generally elevated, the increased power of the horses to surmount the elevation, necessarily produces increased wear and tear, as well as the spring or deflection, which is produced by the elasticity of the frame work in bridges.

The plank was laid across the road, and was, as before stated, 16 feet long.

**Remarks.**—The great requisites in the construction of plank roads, are as follows:

First. Sound timber, of the proper age, and cut at the proper season of the year. Timber, like everything else, can only endure a certain length of time, and like everything else, also, has its period of growth, maturity and natural decay.

Too little attention is paid to this fact in Canada, or, more properly speaking, no attention at all is given to the subject—if it be plank of given dimensions it is quite enough.



The cutting timber at a proper time of the year, (perhaps January is the best time,) is even more important than its age; it has been well ascertained that timber, cut with the sap up in it, will decay in less than half the time that it will when cut in winter; nor can this be difficult of accounting for; it is the sap which contains the fermentable matter, and fermentation is the first step to decomposition—hence the value of those preserving processes called kyanizing, and other processes of inserting into the sap a substance which acts upon one of its constituent parts, which bears a strict analogy to albumen, which, when decomposed by corrosive sublimate, sulphate of copper, and many other substances, becomes indecomposable, and renders the sappy portions of timber as durable as the spine, and greatly adds to the durability of the latter. It is believed that it is good economy to submit the plank intended for roads to these processes, when it will be found to endure, without repair, for ten, or even, twelve years, or probably a longer period.

The next thing of importance in the construction of plank roads, is strict attention to the laying both the longitudinal timbers, as well as the plank, perfectly solid, so as to prevent springing and deflection. A moment's consideration will show that a plank laying loosely on the ground, springing under the weight of horses or wheels, will wear out in half the time that one laying solidly embedded will do; this is caused in two ways, the wear is naturally greater by the double action of the plank and the horses feet—but it is also caused by the increased traction which is produced by plank laying loosely, over that which is produced when they are perfectly firm and non-elastic; in the former case, where the road yields to the wheel, and bends beneath it, the carriage is always as it were going up hill; that is, if the plank be one foot wide, and it deflects or bends one-eighth of an inch, the wheel has to surmount an obstacle equal to the rise of the one-eighth of an inch in six inches, or 1 in 48, and so in any other proportion, whether greater or less.

It is therefore of the greatest importance, with a view to the durability of the plank, as well as to the ease with which animals travel on plank roads, that they should lay as solidly as possible, not only on the sleepers, but also that the earth between the sleepers should be rammed, or made otherwise as hard as possible, and that the plank should bear solidly upon it. One remarkable fact has presented itself, as it regards the traction on plank roads, and which fully proves the truth of the foregoing observations; it is found that the "legs" of horses which travel on plank roads, give out much sooner than they do on Macadamized roads; their "feet" suffer most especially with injudicious shoeing on the latter, but the muscles of the legs are evidently more tired and injured on the former, a tolerably conclusive proof, that however plank roads may be more agreeable to the traveller than Macadamized roads, they are less favorable to animal power.

**Blinding.**—It has been the fashion in Canada, on some roads, to strew sand or very fine gravel on plank roads, two or three inches thick. Experience and observation have convinced me; that while it is an useless expense, it is injurious to the road in more ways than one, it increases the traction, and consequently adds to the wear of the plank. Small stones are necessarily forced into the plank by the weight of the horses and by the action of the wheels, into these cavities the water finds its way to the centre of the plank, and causes incipient decay; it spoils the sleighing in winter, and produces clouds of dust in summer.

The first plank roads were never blinded, and they have assuredly proved the most durable.

Experience, I believe, has fully proved that the best blinding is the small chips taken off by the shoes of the horses, and by the action of the wheels, together with the droppings from animals, which sufficiently saves the wear of plank without the disadvantages of either clay, sand or gravel. With a view to prevent these lighter substances from being washed off the road by heavy rains, the plank should be laid as nearly level as possible; and it will be found that roads thus made will give the earliest and latest, as well as the best sleighing, and be more durable than if laid in any other way.

**Widths of Plank Roads.**—Various experiments have been tried as to the most convenient width of plank roads; we have made them with plank 16, 14 and 12 feet long. Upon the whole, taking economy and utility into the question, I am of opinion that 12 feet is the best width on ordinary roads, a few miles distant from cities and towns; a common wagon scarcely occupies 6 feet, and we have found that two carriages can pass each other very well on a plank road 12 feet wide, but a longitudinal string-piece, of hard wood, down the middle of the road, about six inches high, treenailed down to the sleepers, is indispensable; this string-piece is not continuous, but has a convenient number of breaks or spaces to enable carriages to pass from one side to the other, if necessary. It is found by experience, that the earth which forms the abutments to plank roads, if properly laid, becomes so firm and solid, that it does not yield in any material degree to even a heavily loaded wagon, by the outside wheels merely once going on it; and it must be recollected that the chances are a thousand to one, or more, of two wagons meeting exactly in the same spot, so as to require a repetition of breaking out twice in the same track.

If the road be not twelve feet wide, eight feet is as good as any greater width, especially on lines where the amount of travel is not great, such a road will be found to be invaluable, and will cost as little as any kind of road which can be made.

**Method of Laying the Plank.**—The first impression with respect to the way the plank should be laid, was in favor of laying it longitudinally, for the following reason. If the finger nail be passed over a pine board, planed ever so smoothly, across the grain, it will obviously present a rougher surface than if passed lengthwise with the grain, and doubtless, so far as wear is concerned, fewer chips would be taken up by horses feet, if laid lengthwise, than if laid across the road. The objection is of two kinds—first, that unless the joists are laid very close, a considerable spring or deflection will take place; and, secondly, it has been found that horses smoothly shot will slip upon them when so laid; besides which, if the horses shoes wear the plank less, the wheels will wear it more; under all circumstances, it is believed that the crosswise is better than the lengthwise.

With a view to make the twelve feet plank answer the purpose without waste, it was suggested to lay the plank diagonally; this was tried, and found to be disadvantageous, as will easily appear on examination.

The fact is, that on planks laid diagonally, the two wheels of a carriage are never on the same plank at the same time, and the consequence is, that the pressure on one side the plank, without a corresponding pressure on the other side, produces a spring which is felt by the spike by which the plank is fastened, it soon works loose, and the head of the spike

comes through the plank—all which circumstances are against a firm, unyielding and durable plank road.

**Sleepers.**—It has been suggested to lay plank roads on the natural soil without sleepers, or to lay them with only two outside sleepers. If the foregoing remarks are good for anything, doing either must be a failure. Where the attempt has been made, the writer has seen the water under the plank splashing up, by the weight of the horses, to his very girths—proof enough that the traction upon such a road must be great, consequently increased wear and tear of the plank and a disadvantageous waste of the moving power.

The foregoing will communicate to your readers all the information which has been obtained from our experience in Canada on "PLANK" roads.

The second kind of plank roads submitted to the Provincial Parliament was constructed in the following manner: cross beams were to be laid at certain distances, proportioned to the weight to be carried on the road; in hard ground to be on blocks, and in deep soft soils upon piles; the blocks to consist of pieces of timber of a conical form, with the large end downwards, at least four feet deep, to be out of the reach of the frost; the piles to be driven till they would bear the required weight.

The cross beams to be provided with a shoulder within a foot of the ends against which the timber which constitutes the roadway should abut, through this a mortise should be cut, to receive a wedge for the purpose of driving the timber of the roadway close together, which timbers were to be laid lengthwise, to be of scantling 6 by 6. The centre part to be 16 feet wide, on which are to be driven the common carriages of the country; and on each side to be two wooden rails, nine inches deep and four inches wide, to consist of the hardest wood which can be obtained, to be placed at such distance apart as it shall be determined to have the gauges; between the rails are to be laid timbers the same as the roadway, 6 by 6, and the rails will consequently be three inches above the roadway.

The timbers constituting the road to be doweled so as to form a mass of solid timber, and by being driven up by the wedges will bring the joints close together, and keep them so in case of shrinkage. It is believed that such a road will possess all the combined advantages of a good plank road together with a double railroad.

The third kind of road suggested, consisted of logs flattened, and sawed down the middle, laid with their rounded parts downwards, and the hewed edges abutting against each other, and doweled, the whole resting on cross beams, similar to those designed for the foregoing road, and provided in the same manner with wedges to keep the whole compact. It has been considered that this will form the cheapest, the most durable and easily constructed road which has been proposed.

There is also another method of making a good, cheap and substantial road, of a very simple kind, which I have made to a considerable extent, and which has been greatly approved of; it consists of the common split fence rails, packed well together, and covered with three or four inches of clay taken from the side ditches; the rails should be well split out of straight grained timber; each rail will occupy about six inches, and will take consequently six rails to a lineal yard, they will embed themselves, and will last for eight or ten years, even if exposed to the wear and tear of very heavy loads.

I remain, Mr. Editor, your obedient servant,  
JAMES CULL, Civil Engineer, &c.

## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

## Return of the Eastern Railroad Company, under the Act of April 16, 1846.

Capital stock.....	\$1,800,000
Increase of capital since last report.....	
Capital paid in, per last report.....	
Capital paid in since last report.....	
Total amount of capital stock paid in.....	1,800,000
Funded debt, per last report.....	500,000
Funded debt paid since last report.....	
Funded debt, increase of, since last report.....	
Total present amount of funded debt.....	500,000
Floating debt, per last report.....	
Floating debt paid since last report.....	
Floating debt, increase of, since last report, [of which \$374,833 06 paid in account new stock].....	442,572 13
Total present amount of floating debt.....	515,133 14
Total present amount of funded and floating debt, [which includes \$191,778 34, renewal and sinking funds].....	1,015,133 14
Average rate of interest per annum on do, [5 per ct. on funded debt, 6 per cent. all others].....	
COST OF ROAD AND EQUIPMENT.	
For graduation and masonry, per last report.....	
For graduation and masonry, paid during the year.....	452,032 21
Total amount expended for graduation and masonry.....	
For bridges, per last report.....	
For bridges, paid during the past year.....	241,634 23
Total amount expended for bridges.....	
For superstructure, including iron, per last report.....	
For superstructure, including iron, paid during the past year.....	707,035 03
Total amount expended for superstructure, including iron.....	
For stations, buildings and fixtures, as per last report.....	
For stations, buildings and fixtures, paid during the past year.....	267,944 25
Total amount expended for stations, buildings and fixtures.....	
For land, land-damages and fences, per last report.....	
For land, land-damages and fences, paid during the past year.....	202,260 47
Total amount expended for land, land-damages and fences.....	
For locomotives, per last report.....	
For locomotives, paid during the past year.....	98,102 79
Total amount expended for locomotives.....	
For passenger and baggage cars, per last report.....	
For passenger and baggage cars, paid during the past year.....	71,160 65
Total amount expended for passenger and baggage cars.....	
For merchandise cars, per last report.....	
For merchandise cars, paid during the past year.....	31,736 03
Total amount expended for merchandise cars.....	
Total amount expended for gravel and hand cars.....	6,934 34
For engineering and other expenses, per last report.....	
For engineering and other expenses, paid during the past year.....	142,028 81
Total amount expended for engineering and other expenses.....	
Total cost of road and equipment.....	2,220,868 81
CHARACTERISTICS OF ROAD.	
Length of road.....	38 miles 1063 feet.
Length of single track.....	38 " "
Length of double track.....	16 miles.
Length of branches owned by the company, stating whether they have a single or double track.....	3 miles, single track.
Weight of rail per yard in main road.....	46 pounds.
Weight of rail per yard in branch roads.....	46 " "
Maximum grade, with its length in main road.....	40 feet, length 379 feet.
Maximum grade, with its length in branch roads.....	40 " "
Total rise and fall in main road, [total ascent 310, 969, descent 267,310].....	578,379 feet.
Total rise and fall in branch roads.....	
Shortest radius of curvature, with length of curve in main road.....	1146 ft.; length 1100 ft.
Shortest radius of curvature, with length of curve in branch roads.....	900 feet.
Total degrees of curvature in main road.....	450 feet.
Total degrees of curvature in branch roads.....	
Total length of straight-line in main road.....	28 miles, 4980 feet.
Total length of straight-lines in branches.....	1 mile, 3310 feet.
Aggregate length of truss bridges.....	
Whole length of road unfinished on both sides.....	
DOINGS DURING THE YEAR.	
Miles run by passenger trains.....	201,626
Miles run by freight trains.....	33,680
Miles run by other trains.....	17,746
Total miles run.....	253,052

Number of passengers carried in the cars.....	766,756
Number of passengers carried one mile.....	12,575,386
Number of tons of merchandise carried in the cars.....	38,0134
Number of tons of merchandise carried one mile.....	1,090,4424
Number of passengers carried one mile, to and from other roads.....	
Number of tons carried one mile, to and from other roads.....	
Average rate of speed adopted for passenger trains, including stops.....	31 miles.
Average rate of speed adopted for freight trains, including stops.....	15 miles.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	50 tons.
Estimated weight of merchandise trains, including engine and tender, but not including freight, hauled one mile.....	90 tons.

EXPENDITURES FOR WORKING THE ROAD.	
For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron.....	\$17,918 91
For repairs of truss bridges.....	11,711 97
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-men.....	2,326 25
For removing ice and snow.....	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....	176 60
Total for maintenance of way.....	21,439 82

MOTIVE POWERS.	
For repairs of locomotives.....	6,679 90
For new locomotives to cover depreciation.....	
For repairs of passenger cars.....	6,655 57
For new passenger cars to cover depreciation.....	
For repairs of merchandise cars.....	1,180 01
For new merchandise cars to cover depreciation.....	
For repairs of gravel and other cars.....	39 60
Total for maintenance of motive power.....	14,778 08

MISCELLANEOUS.	
For fuel and oil.....	33,279 73
For salaries, wages and incidental expenses, chargeable to passenger department.....	23,194 87
For salaries, wages and incidental expenses, chargeable to freight department.....	2,680 04
For gratuities and damages.....	551 75
For taxes and insurance.....	8,413 26
For ferries.....	
For repairs of station building, aqueducts, fixtures, furniture.....	576 56
For interest.....	30,248 39
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company.....	
For amount paid other companies as rent for use of their roads, specifying each company.....	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above officers, and all other expenses not included in any of the foregoing items.....	27,819 07
	162,804 57

INCOME DURING THE YEAR.	
For Passengers:	
1. On the main road exclusively, including branch owned by company.....	310,061 14
2. To and from other roads, specifying what.....	
For Freight:	
1. On main road and branches owned by company.....	41,971 06
2. To and from other connecting roads, [incidentals and profit and loss account].....	3,858 19
U. S. mails and rents.....	15,178 29
Total income.....	371,338 61
Net earnings after deducting expenses.....	208,534 04
DIVIDENDS.	
Surplus not divided, [83,253 07 paid for renewal fund, deducted].....	17,600 97
Surplus last year.....	112,722 26
Total surplus, [including sinking fund entire, and unexpended balance of renewal do.].....	130,403 25
ESTIMATED DEPRECIATION BEYOND RENEWALS, FOR:	
Road and bridges.....	
Buildings.....	
Engines and cars.....	6,000 00

During the year.....



To the Honorable the Senate and House of Representatives, in General Court assembled:

The Directors of the Eastern railroad present their Eleventh Annual Report in the form prescribed by law. Some explanation may be required.

The capital is stated at.....	\$1,800,000 00
During the past year an order was passed by the directors for the creation of 4390 new shares on the 1st of January, 1847, and made payable in assessments on the 1st July, 1st September, 1846, and January, 1847—and on them has been paid in, and is included in amount above stated of floating debt, 31st December, the sum of.....	374,833 06
It also includes balance of renewal and sinking funds.....	101,778 34
And, with the funded debt, \$500,000, and other liabilities, makes up the amount of.....	2,811,133 06
In the cost of the road and equipment is included the amount standing to construction account.....	2,220,868 81
And to property accounts.....	273,309 87
Which, together, show an actual expenditure of.....	2,494,268 68
The property having been estimated at its market value in 1843, which was about \$59,000 more than it had actually cost—thereby allowing that sum for deterioration.	
Also expended for improvements not completed.....	51,763 33
Also expended for new tracks, do. do.....	31,119 85
Also expended for Gloucester and Salisbury branches, do. do.....	156,480 94
Also expended for railroad iron on hand.....	85,100 34
	2,815,133 14

It should be stated that the above includes equipment for the Eastern railroad in New Hampshire, which has a capital of 4825 shares of \$100 each, which are entitled, as rent, to the same dividends as the stock in the Eastern railroad.

The two branches above named will be ready for the superstructure as soon as the season will permit.

No passenger has been injured in the cars during the year. In November, a woman, in attempting to get into the cars after they had started, fell on the track, and had her arm broken.

Two dividends, of \$1 per share, have been declared during the year, amounting, with the payments to the New Hampshire road, to \$182,600.

Respectfully submitted.—D. A. Neal, John Hooper, Isaiah Breed, Daniel Adams, John Bryant, Jr., John Eliot Thayer.

#### Baltimore and Pittsburgh.

The Pittsburgh Gazette of Monday week contains the following official account of the proceedings of the meeting held there on Saturday.

#### Stockholders' Meeting.—Pittsburg and Connellsville Railroad Company.

PITTSBURG, March 27, 1847.

In pursuance of adjournment, the stockholders of the Pittsburg and Connellsville railroad company met this day at 3 P. M., and were called to order by Wm. Eichbaum, Esq., chairman.

Thomas Bakewell, Esq., from the committee to report resolutions, submitted the following preamble and resolutions, which, upon due consideration, were unanimously adopted.

Whereas, A communication having been received from a committee of the Baltimore and Ohio railroad company, announcing its appointment and intention to visit this city for the purpose of renewing negotiations with this company, it is proper and becoming that said committee, before leaving home on the

business entrusted to them, should be made acquainted with the present disposition of the stockholders of this company. Therefore,

Resolved, That the stockholders of this company cannot perceive any thing in the late action of the stockholders of the B. & O. R. R. Co.—especially when taken in connection with the remarks of the President, when he says—"If the company were to decide upon one terminus, and direct its undivided resources toward the completion of one road to one terminus, and that were to be either Pittsburg or Wheeling, then Wheeling was, beyond question the desirable point," which would justify this company in revoking the resolution of the 25th February, or that holds out any reasonable prospect of a favorable issue of further negotiations while such counsels prevail.

Resolved, That if a substantive proposition shall have been made antecedent to the 25th of next April, duly authorized by the stockholders of that company, expressing their willingness to devote their undivided energies to the connection with this city by the shortest and cheapest route, then the President and Directors of this company are hereby authorized to reopen negotiations for the settlement of preliminaries, and report to a future meeting of the stockholders to be held for that purpose.

Resolved, That if the committee of the Baltimore and Ohio railroad company shall, under their instructions, visit this city, the President and Directors of this company are requested to tender them a hospitable reception, and afford them every facility of becoming acquainted with the manufacturing and commercial resources of this city, and the advantages it presents to their company, and to the city of Baltimore, as the point of connection with the Ohio river.

Resolved, N. B. Craig, Thos. Bakewell, Wm. Ebbs, Geo. Darsie and E. D. Gazzam, be a committee to communicate a copy of these proceedings to the committee of the Baltimore and Ohio railroad company, as expressive of the sentiments of this meeting.

Resolved, That when this meeting adjourns, it will adjourn to meet again on the 27th of April next, unless sooner convened, for the purpose of receiving the report of the various committees, appointed at this meeting, and of considering such other business as may be brought before them.

WM. EICHBAUM, Chairman.

Edw'd Gazzam, Secretary.

#### ITEMS.

**The Mail Steamers.**—The Washington correspondent of the New York Herald has the following concerning the command of the government mail steamers for Liverpool:—It is understood that the Secretary of the Navy will require that each of the steamers of the Liverpool line shall be commanded by an officer of the navy, not under the grade of a lieutenant, otherwise he assumes that the four midshipmen set apart as watch officers in the bill to each ship, will be rather calculated to excite insubordination and mischief than the object of regular trips and naval regularity, and that they must have a superior officer on

board. The Liverpool line, therefore, in the respect of a commanding officer, will be subject to the same control as the line to Havana and New Orleans, and the collateral line from Havana to Chagres. The Congress bill does not exact a naval officer as commander to the Liverpool steamers, but the Secretary of the Navy will make it a condition to Mr. Collins' contract, and it will be so far an advantage to the contractor.

**Another Feather in the Cap of American Enterprise.**—Mr. Leon Lewenberg, of Williamsburg, has recently completed a large Refracting Telescope out of American materials. It has eight and a half inches aperture, and a focal distance of 14 feet. It is mounted on a convenient carriage, with all the necessary apparatus for direction, and its weight is half a ton. This instrument can be afforded for \$5000, and is pronounced by competent judges to be equal to those of Europe which cost \$10,000. A committee from the American Institute, are about to ask permission of the Common Council, to exhibit this telescope to the citizens of New York—for which purpose they will ask the privilege of erecting a temporary shed in the Park, opposite the City Hall. The aperture of this telescope is half an inch wider than that in the Cincinnati telescope; the cost of which was \$14,000.

**The Schuylkill Navigation.**—The water has been let into the Schuylkill Navigation, throughout its entire length, and it is thought the first boat of the season will leave Pottsville by about Monday next, freighted with coal. The amount of coal shipped from this region during the year 1846, was very little short of a million and a half of tons. The Schuylkill Navigation company were engaged last year in improving and widening their canal, so as to admit the passage of steamboats, and by the time it was completed, winter had set in, so that nearly, if not quite all the coal sent to market during that period went by railroad. In anticipation of the renewal of transportation on the canal, and its large capacity, the mining operations have been very much exhausted. A number of new mines have been opened, and expensive improvements added to those already in operation. We may, therefore, confidently predict a larger amount of shipments of coal for 1847 than any preceding year.—Pottsville Register, March 27.

**The Rutland Road.**—The work is going on at four points this side of Mount Holly, and the Mount Holly sections are to be commenced immediately. The sections in Brandon are progressing, and the remainder of the line, the President informs us, will be immediately put under contract. The Sullivan road is going forward. Our own road, the Cheshire, will now be pressed in every section, as the Directors of the Sullivan and Rutland (the latter the Cavendish at least) profess their determination to be ready to receive the cars as soon as they can arrive at Bellows Falls.—N. H. Sentinel.

**The Railroad.**—Our directors are busy at work doing everything that can be done to insure the earliest construction of the road.

Three corps of engineers have for some time been at work locating the road in different places on the line, and a fourth is being organized this week. Since these active movements, we understand the people in towns on the line are taking a renewed interest in encouraging the work. In Bowdoinham a spirited meeting was held last week, at which the subscription to the stock was encouragingly increased.—Augusta Banner.

**Chesapeake and Ohio Canal.**—We are happy to have it in our power to state that the speedy completion of this great work is now beyond a doubt. Hon. John Davis, Ex-Governor of Massachusetts, and now U. S. Senator from that State, together with his colleagues, Hon. Daniel Webster, Nathan Hale, Esq., of Boston, and other distinguished individuals, are now in Washington, for the purpose of consummating arrangements whereby the completion of the Chesapeake and Ohio canal is to be forthwith commenced in a manner that will forbid the possibility of another suspension. We understand these gentlemen constitute a commission on the part of the capitalists, who stand ready to advance the money required to accomplish the work.—Wash. Union.

**Railroad Accident.**—An accident occurred on the Boston and Maine railroad lately, at the Wilmington junction, by which, we are sorry to learn that several passengers received some slight bruises, also the baggage-master of the train. The accident was occasioned by the train from Portland overtaking the freight train, which was about backing off to give the passenger train the road. The engine man of the passenger train reversed his engine, and the brakemen applied their breaks in more than usual season; but in consequence of the slippery state of the rails (it was snowing and raining at the time) the train could not be stopped in time to avoid a collision. The baggage car was badly broken, and the forward passenger car considerably injured. The smoke pipe of the engine was knocked off, and several of the freight cars slightly damaged.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

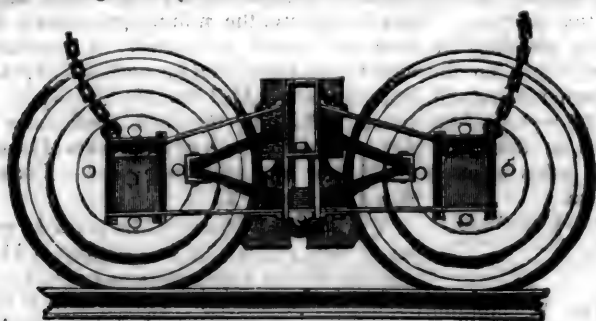
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-8	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1734

### RAY'S EQUALIZING RAILWAY TRUCK—THE SUBSCRIBER HAVING RECENTLY FORMED A BUSINESS CONNECTION IN THE CITY OF NEW



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROG, Supt. of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed.] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

Jersey City, November 4, 1845. [Signed.] T. L. SMITH,

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, [Signed.] JOHN LEACH,

Jamaica November 12, 1845. } 1y19 Supt. Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquor, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was not hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as entirely fire proof.

GORRIS & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 31st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 130 Meeting street Charleston, S. C.

16 U

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Meritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by J. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

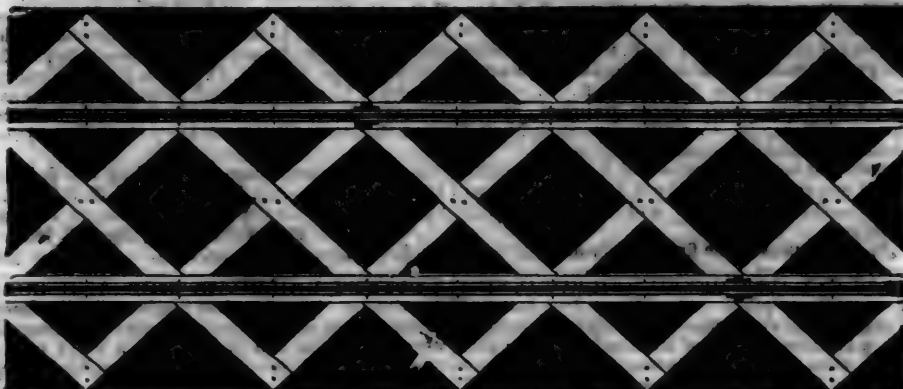


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,415 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 334

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor.

D. K. MINOR.

ENGINEERS' AND SURVEYERS'

INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No. 23 Pearl street, below Walnut,  
1st 10th Street, Philadelphia.

## LAP-WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1925 Broadway, 23 Platt street, New York.

## RAILROAD IRON.

## MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Dec. 25, 1y<sup>st</sup> Presl Mt. Savage Iron Works, Maryland.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 23 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Borden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 18]

SATURDAY, MAY 1, 1847.

[WHOLE No. 567, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4½ p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.  
J. W. RAYMOND LEE, Sup't.

**BRANCH RAILROAD AND STAGES** Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M. The Train from Philadelphia arrives at Reading at 12 18 M. The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and \$3 00	
" " Reading, 58		2 25 and 1 90	
" " Pottsville, 34		1 40 and 1 20	

Five minutes allowed at Reading; and three at other way stations.  
Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 9 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25. On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East. SUMMER ARRANGEMENT, April 1, 1847.

**PORTLAND TRAINS.** Leave Boston at 7 A.M. and 2½ P.M. Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.** Leave Boston at 5 P.M. Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.** Leave Boston at 11½ A.M. and 6-20 P.M. Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.** Leave Boston at 8½ A.M. and 8½ P.M. Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.** Leave Boston at 7½, 11½ A.M., 9½, 5½, 7 P.M. Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M. The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.  
1y31 CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M. " Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M. " Middletown at 12 M.

The names of the consignees and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 3 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 ff

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich at 6 a.m., and 4½ p.m. Leave Worcester, at 6½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday. Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't. 32 1y





**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 271 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic ..... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Res-wax, Mill Gearing, Pig Iron and Grind Stones.....	\$0 50	\$0 75
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs. 35	
Crockery, per cubic foot.....	0 15 "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846.

**GREAT SOUTHERN MAIL LINE VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to  
STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, and the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLIOTT & ABBOTT.  
Factory, 5th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston, S.C., on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50  
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 20 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.  
1y25 JOHN KING, Jr, Agent.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
445 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by  
JOHN W. LAWRENCE,  
149 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 30 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1lf

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address  
SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

4tf

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
FULLER & BROWN, Agent.

No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10c39

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
29 Water St., New York

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

**THE SUBSCRIBER'S AGENTS FOR** the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,  
59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [1y4]  
**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2. [1lf] 68 Broad St., New York.

**RAILWAY IRON.—DAVIS, BROOKS & CO.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by  
A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

12tf

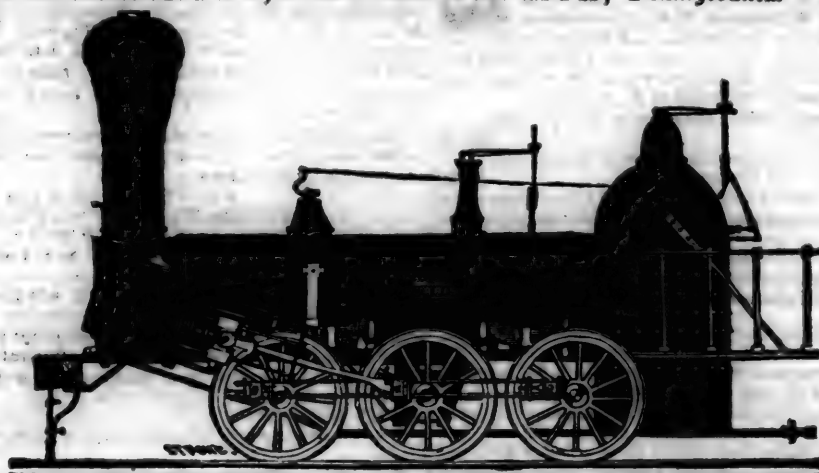
**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip,  
New York.

1y10

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
"	2,	14	"	"	× 24	"
"	3,	14½	"	"	× 20	"
"	4,	12½	"	"	× 20	"
"	5,	11½	"	"	× 20	"
"	6,	10½	"	"	× 18	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FRIE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia. 38th

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

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Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

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For terms, apply to **HENRY ANDREWS, 48 State st.**, or to **CURTIS, LEAVENS & CO., 106 State st.**, Boston, or to **A. & G. RALSTON & Co., Philadelphia.** j245

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**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

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## FURTHER ITEMS FROM ENGLISH PAPERS.

**Cost of Constructing Railways in France.**

The financial reports presented to the French government by the engineers charged with the construction of the three sections of railway in the centre of France, give the following estimate of the expense:—The section between Vierzon and the confluence of the Allier and the Loire, the length of which is 32,194 met., will cost 5,600,000 fr.; or 173,945 fr. per kilometre. The section from Vierzon to Chateauroux, of the length of 56,691 metres, will cost 8,260,000 fr., being 138,380 fr. per kilometre. The section from Chateauroux to Limoges, the length of which is 76,419 metres, will cost 15,000,000 fr., or 196,286 fr. per kilometre. These three sections will, therefore, cost 28,860,000 fr., including the compensation for ground, works of art, guard houses, etc.

**Consumption of Smoke.**—A patent has been obtained by Messrs. G. & W. Taylor, for an invention to be applied to all furnaces constructed in the ordinary manner with open ash pits, for effecting a more perfect combustion of the inflammable gases and unconsumed carbon. It consists, first, in the application of an exhausting and blowing apparatus; and secondly, in a peculiar distribution or arrangement of the smoke flues, so as to be adapted to the operation of such apparatus. A fan, or blower, is applied to the flue just before the entrance to the chimney, to arrest the smoke and unconsumed gases, and force them through a flue, leading therefrom, and opening on, to the dead plate at or near the front of the fire bars. By this means the whole is passed over the incandescent fuel, where it is consumed, instead of passing up the chimney unconsumed.

**Manufacture of Iron in America.**—In last week, one of the anthracite furnaces (of the three in blast) at Calasaqua, three miles north of this place, yielded the unprecedented quantity of 112 tons of the best pig iron metal in one week! They say they can do more, they expect to run as high as 130 tons in one week. We believe there is not another blast furnace in the United States that can equal it. This immense establishment has been in successful operation for several years, and is under the immediate control and superintendence of Mr. D. Thomas—(author of several papers in the *London Mining Journal*)—a gentleman of great and practical experience, and who has a knowledge of the manufacturing of iron, equal if not better than any other person in the United States. He is most indefatigable in his exertions in conducting these works. This establishment is in the full tide of prosperity, and must be one of the most profitable of the kind in the country. We hear nothing said of the new tariff retarding their progress.—*Lehigh Bulletin*.

**Crampton's Patent Locomotive.**—In former numbers of the *Mining Journal*, we have described and illustrated Mr. T. R. Crampton's patent engine; we learn, by the *Cumberland Packet*, of Tuesday, that an engine, on Mr. Crampton's principle, and built by Messrs. Tulk and Ley, left that day the iron works at Lowca, near Whitehaven, for its future

destination on one of the railways in Belgium. There is also a "monster engine" upon the same principle now in course of construction at Messrs. Tulk & Ley's establishment, destined for the London and Birmingham railway. These engines are both on the narrow gauge principle, with 8 feet driving wheels; and the superiority claimed for them is, that they combine the entire safety of the broad with all the velocity of the narrow gauge. The centre of gravity in these engines is much lower than in any others, and, consequently, the rocking and vibratory action is greatly reduced, as nearly its whole weight is confined between its supports. Either four, six, or eight wheels may be used on Mr. Crampton's engine without the slightest alteration in the working arrangements; and the advantages resulting from large wheels are secured by the gravity being wholly uninfluenced by the size of the driving wheel. Another advantage arising from Mr. Crampton's engine is, that from the position of the boiler, the heating surface may be increased to an extent of at least 2000 ft., if required, without injuriously affecting the centre of gravity; while the angle of stability is also much greater than upon other engines. With the engine now building for the London and Birmingham railway company, various experiments, calculated to prove the superiority of its principle, are intended to be tried, and we shall be happy to learn the result.

**New Era in Steam Navigation.**—We have before referred to the invention of Mr. Stephen R. Parkhurst, of New York, for which he has obtained patents in England, and other parts of Europe, and also in America. We have been shown, by a practical engineer, the design of a steam engine, invented also by this gentleman, the construction of which is so simple, so powerful, and so direct, that several engineers and machinists assert that it will supersede the present steam engines, both on land and water. For the turning of his steam ship propellers this engine is admirably adapted; its action is direct upon each shaft of the propeller, leaving the entire hold of the vessel free of the bulky machinery which now fills so much valuable space in steamers—the boilers and coal occupy but a small space of the hold of the ship. Several features will distinguish Mr. Parkhurst's "steam ship propeller and direct marine steam engine," among which, economy of time, of fuel, and other items, will form a large saving in the present expenditure of steam navigation. It is proposed to bring these important inventions immediately into operation in this country, for which a company is now forming, with a view of testing, upon a large and practical scale, their utility. In company, a few evenings since, with a party of nautical gentlemen of New York, Boston, and Philadelphia, it was asserted that, before long, steam ships would leave *Liverpool daily, running alternately to New York, Boston and Philadelphia!* And why not? There are now already, upon a rough calculation, at least from 300 to 400 vessels leaving *Liverpool annu-*

ally for the above-mentioned ports; and by the application of Mr. Parkhurst's inventions they can be readily converted into steam ships, at a comparatively small expense.—*Wilmer and Smith's European Times*.

**Labor to Make a Watch.**—Mr. Dent in a lecture delivered before the London Royal Institute, stated that a watch consists of 902 pieces, and that 40 trades, and probably 215 persons, are employed in making one of these little machines. The iron of which the balance wheel is formed is valued at something less than a farthing; this produces an ounce of steel worth 41 2d., which is drawn into 3250 yards of steel wire, and represents in the market £13 3s.; but still another process of hardening this—originally a farthing's worth of iron—renders it workable into 7650 balance springs, which will realize, at the common price of 2s. 6d. each, £956 5s., the effect of labor alone. Thus, the mere labor bestowed upon one farthing's worth of iron gives it the value of £956 5s. which is 918,000 times its original value.

**Best Iron for Gun Barrels.**—In order to make *stub iron*, old horse shoe nails, called "stubs," are collected, then packed closely together, and bound with an iron hoop, so as to form a ball about 10 or 12 inches in circumference, which, being put into a furnace, or forge, fire, and raised to a welding heat, is united by hammering and drawn out into bars of convenient length for the purposes intended. This method is adopted for the locks, furniture, and breechings of all best guns; and is, to a certain extent, practiced for barrels, though not so much as formerly, more expeditious methods being employed on a larger scale. And, the quantity that can be obtained in this country being not only inadequate to the demand, but inferior in quality, immense numbers of horse shoe nails are imported from France, Holland, Sweden, and other parts of the continent, in casks containing from 16 to 18 cwts. each. The most approved modern method of converting them into gun barrels (after carefully sorting and picking them, to see that no cast iron or impurities are mixed with them,) is, first to put about half a hundredweight into a large cast iron drum, or cylinder, crossed internally with iron bars, through the centre of which a shaft passes, which is connected by a strap with the steam engine, and the revolution of the drum actually polishes the nails by their friction against each other. They are then sifted, by which every particle of dust is removed.—The steel intended to be mixed with them is clipped, by means of large shears worked by the engine, into small pieces, corresponding in size to the stubs, and afterwards cleansed by a similar process. About 40 pounds are thrown on to the inclined hearth of an air furnace, where they are puddled, or mixed together, with a long iron rod, and withdrawn in a mass called a bloom, almost in a state of fusion, to be welded under a hammer of three tons weight, by which it is formed into a long square block. This, being put in at another door of the same air furnace, is raised to a bright red heat, and drawn out, under a tilt hammer of a ton and a half weight, into

bars of a proper size to pass the rollers, by means of which it is reduced to rods of the required size. The air furnace, having two doors, prevents any loss of time, as the moment one ball of stubs is withdrawn another charge is put in, and the two operations go on together, keeping both hammers employed. The iron thus produced is very tough, and free from specks or greys. But stubs are hardly ever used alone, as they were formerly, being too soft. Therefore, a portion of steel is mixed with them, which varies from one-eighth to one-half of the whole mass. It need hardly be remarked, that the advantage to be derived from the use of horse-shoe nails does not arise from any virtue in the horse's hoof, as some have imagined, but simply because good iron is, or ought to be, originally employed for the purpose. Otherwise nails would not drive into the hoof. And the iron being worked much more, is freed from its impurities, which can only be effected by repeated workings.—*Engines of War.*

**Progress of French Mining Industry.**—The St. Germain railway company is now causing to be covered in its immense station at Paris. Till now, passengers arriving and departing were exposed to all the severity of the weather, which was very disagreeable; and, besides, the carriages and locomotives sustained damage from being always exposed to the open air. This station serves as the head of the Rouen and Versailles railways, as well as of the St. Germain, and will shortly have to serve for the Havre line also. The vast structure now in course of erection is exclusively of iron, and appears to unite solidity with lightness and elegance. The covering of the roof will be in zinc. The great station of the Northern railway, at Paris, is also in iron; and it seems certain that all the *debarcaderos* of the railways that may hereafter run into the capital, will be in iron too. Iron, no doubt, is the best thing that could be employed for such a purpose; and notwithstanding its excessive dearth, will certainly turn out in the long run to be cheaper than any other material. The vast iron *debarcaderos* of the Northern and St. Germain railways, deserve to rank among the curiosities of Paris. They cast the long straggling one in wood of the Orleans line completely in the shade.

Most of the great iron establishments are devoting considerable sums to the purchase of flour and corn, which they sell to their workmen at less than the market price. The companies of Hayange, Blanz, the furnaces of the Loire and Ardeche are particularly quoted for their charity. Messrs. Talabot have adopted another system in their iron works—they induce their men to eat a good deal of meat, instead of subsisting entirely, or principally, upon mere vegetable diet as heretofore; and Messrs. Talabot hope, that after a few months' meat eating, their workmen will be as stout, strong, and laborious as those of England. It is ungracious to cast a reflection upon what seem charitable actions—but is not the sudden affection which the iron masters just now manifest towards their workmen, adopted as a nice little piece of clap-net

for the Chambers, when the iron monopoly shall be attacked?

One of the favorite topics in the declamation of the ironmasters, and their partisans, against any modification of the iniquitous protection they enjoy, is, that it would have the effect of driving 400,000 workmen out of employ. Now, the fact is, that the persons employed in the fabrication of iron in this country do not exceed, even if they come up to, 49,000. Supposing that the abolition of all protection would entirely ruin the iron trade, so small a number of individuals could easily find other kinds of employment. But there cannot be a more mistaken notion on earth, than to imagine that the doing away with an excessive and unjust protection would cause the ruin of the iron trade in this country. The great difficulty against which the ironmasters have to contend is scarcity of fuel, and dearness of conveyance. Of ore they have as much as they can require—more, indeed, than they can work. Give them, then, cheap coal, with cheap and rapid means of conveying their products to all parts of the country, and they have nothing to dread from foreign competition; so far from it, some well informed people even declare that with such advantages, foreign competition would have reason to dread them. Here is a proof of what French ironmasters can do with cheap fuel. In the northwestern group of iron mines, as it is called, iron ore is far from being so good, or so plentiful, as in the rest of France. Up to 1834-36, the production of iron in this group was very insignificant, owing to the heavy duties that existed on foreign coal; it was only 208,037 metrical quintals of cast iron, and 83,967 metrical quintals of forged iron. But almost immediately after the duties were lowered, the production increased to 291,061 metrical quintals of cast, and 137,768 metrical quintals of forged iron. Observe that the duties on coal were not abolished, but only reduced, the reduction still leaving them excessively high; and yet a mere reduction caused that great increase in the fabrication of iron in the most unfavorable district of all France. What would have been the consequences, had the duties on coal been abolished altogether? and what would be the consequence of a total abolition—not on the production of the worst iron district of France, but on that of the entire kingdom?

**Gt. Western Railway.—Tires of Wheels.**

—The Great Western railway company, in order to obviate all risks of future accidents, arising from broken tires, and not satisfied with the slender and uncertain security of the rivets recommended at the late coroner's inquest by Messrs. Braithwaite & McConnell, have been experimenting upon a wheel with a tire fitted upon a new principle; and which, having gone through the severe test of being cut in two, has been run at a high speed, and with a heavy load, without the smallest perceptible alteration of its position.—*Railway Chronicle.*

**Extraordinary speed on the Narrow Gauge.**

—Mr. Crampton's engine, the "Namur," constructed for the Namur and Liege company,

reached a speed of 75 miles per hour on Monday, the 22d March last, upon the short level of the portion of the London and Northwestern line between Euston square and Harrow. The rate of speed was noted by Capt. Codrington, who rode upon the engine. It is stated that the engine was perfectly steady at this high velocity. The "Namur" has been tested with "fast," "stopping," and "heavy" trains, and has always done her work much within the allowed time. The driving wheel of the "Namur" is seven feet in diameter.—We are informed that a very powerful engine on Mr. Crampton's principle of construction, and with eight feet driving wheels; will be brought upon the London and Northwestern line early in May next.—*Ibid.*

The catholic clergy of Rome have taken up the cause of railways; and a religious periodical of that city has, of late, devoted four columns to the subject.—*Id.*

**Speed on Railroads Considered in a Commercial Point of View.**

We find in the London Railway Chronicle, of March 6, a well written article on this subject, which we copy at length into the Journal—and for which we ask a careful perusal; it gives facts useful to those interested in, and having the management of, railroads in this country. We are just beginning to derive useful instruction from the working of the English roads, and we hope to profit by their experience.

Locomotive power is divided almost equally between the traction of passengers and of merchandize (including in the latter term live and dead stock.)

The further railways extend, the more important does the transport of agricultural, mining and manufacturing produce become.

Passenger traffic may be divided into express trains—mail trains—ordinary trains—parliamentary or third class trains.

Express trains afford passengers, from a few select stations, the highest rate of speed at a high price. For instance, the Great Western express, calling only at six stations throughout the 193½ miles, performs the distance between London and Exeter in four hours and a half; which, by the parliamentary train, calling at 39 stations, occupies 14 hours; and by the mail, calling at 20 stations, seven hours and a half.

Mail trains regulate the number of their halts by the number of post towns; while ordinary trains are presumed to be regulated by the requirements of the district traversed.

Parliamentary trains are bound to halt at every station between the two termini, and to maintain a speed of not less than 12 miles per hour.

An immense difference exists between the speed maintained on the various railways of this kingdom, even where the levels and curves are equally favorable, and the engines employed are constructed by the same maker.

In order to attain the highest rate of speed, of which a particular engine is capable, it is necessary to traverse a line as nearly level and straight as possible, with few halting stations and little cross traffic.

A rate of speed which would be quite safe in a thinly populated district, where the traf-



fic flowed in a parallel line to the railway, would be highly dangerous in a mining or manufacturing country, where roads and railways crossed frequently at right angles. The time lost in stopping and setting out again from numerous stations, amounts to many miles an hour. On several railways the numerous passengers gained from these halts are more profitable than those who would be willing to pay a higher fare to be conveyed without pause between the two termini.

On the Manchester and Leeds line, in 61 miles, there are, out of 28 stations, 12 which form the foci of thickly populated manufacturing districts, to and from which 35 passenger trains, of which 17 include third class carriages, ply daily; while on the Great Western, in the 72 miles between Reading and Bath, Didcot and Swindon are the only stations of any importance, and out of 44 trains, 4 only are open to third class passengers. It is obvious that it would be unprofitable, if it were possible, for the Manchester and Leeds to run trains at the speed used on the Great Western.

Presuming, for the purpose of comparison, that the construction and the nature of the traffic of any two lines is the same, it becomes necessary to ascertain whether speed beyond a certain limit does not cease to be remunerative.

There is no doubt that part of the cost of conveying merchandise is defrayed by passenger fares: coal and iron could not be conveyed at 1d. per ton per mile, unless first and second class passengers travelled by the same route. That is to say, the surplus which such a rate of carriage affords, after paying the actual expense of hauling a ton of coals, would not be sufficient to cover the fixed expenses of the railway—to pay the interest on the capital employed in its construction, etc.; and there are, in like manner, strong grounds for believing that ordinary trains defray more than their share of the expenses of express trains.

It is quite impossible to obtain authentic materials instituting an exact comparison of the cost of locomotion on various railroads, but it is worthy of remark, that since the rivalry between the gauges has led to the acceleration of express trains the pace of ordinary trains even on lines possessing gradients favorable for speed, has rather declined than advanced; and that the charges of the Great Western, which is distinguished for the celebrity of its express trains, exceed those of all the railways in the kingdom, by from 20 to 25 per cent. on passengers, and by from 30 to 500 per cent. on goods, which would lead to the conclusion that the speed of express train has been obtained at the expense of the speed as well as of the fares of ordinary trains.

In confirmation of this opinion, we extract from a Cheltenham paper the following tables, which show that while on an average of all the trains between London and Southampton the rate is 25.29 miles per hour; and on the London and North Western, between London and Birmingham, 24.26 miles per hour; the Great Western, between London and Bristol, only attains 23.97 miles per

hour. Between London and Wolverton the average is 26.92 miles per hour; while from London to Swindon the rate is only 24.97, being a difference of 2 miles per hour in favor of the narrow gauge line.

London and North Western.									
Miles.	Trains leaving Euston-square.	Time to Wolverton.	Time to Birmingham.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.
61	6 15 7	1 57 3	4 36 7	26.92	1 57	24.26	1 57	26.92	1 57
112 1/2	6 15 7	1 57 3	4 36 7	24.26	1 57	26.92	1 57	24.26	1 57
South Western.									
Miles.	Trains leaving Nine Elms.	Time to Southampton.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.
72	7 0 7	3 50 4	25.29	3 5	24.97	3 5	25.29	3 5	24.97
Great Western.									
Miles.	Trains leaving Paddington.	Time to Swindon.	Time to Bristol.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.	Rate of Miles per hour.	Average Time occupied.
77	6 0 6	3 20 5	4 0 9	24.97	3 5	23.97	3 5	24.97	3 5
118 1/2	6 0 6	3 20 5	4 0 9	23.97	3 5	24.97	3 5	23.97	3 5

The secret of this undeniable conclusion, so directly opposed to popular opinion, lies in the trains at 12.9 miles an hour, which are provided by the Great Western managers in compensating economy for those at 42 miles an hour.

It is thus that the many pay for the accommodation of the few. The M. P. flies by the express eagle, the countryman crawls by the parliamentary tortoise.

The manifest superiority of the Great Western express trains seems to be maintained under all the circumstances which we have laid down as requisite for the attainment of high speed.

First, favorable gradients; the prevailing gradient of the Great Western being 1 in 817 feet, while that of the London and North Western is 1 in 330, and of the South Western, 1 in 250.

Secondly, the absence of cross traffic.

Thirdly, high fares.

The Great Western charges the passengers to Exeter, for 193 1/2 miles (which is 20 miles farther than by the old coach road), by express, first class, 50s., second class 34s.; ordinary first class, 44s. 6s., second class, 30s.

The London and North Western to Warrington, 100 1/2 miles, by express, 42s.; ordinary first class, 33s. 6d., second class, 25s.—And the rates of the narrow gauge, South Western South Eastern, Eastern Counties and Norfolk lines are on the same scale.

The history of speed since 1845, is curious. In March, 1845, the South Western, Grand Junction, London and Brighton, Midland Counties and Great North of England had each from four to six trains daily, travelling at from 27 1/2 to 33 1/2 miles per hour. In March, 1846, the Great Western had advanced the speed of its express trains to 42 miles an hour, and of several ordinary trains to 27 1/2, while the before-mentioned narrow gauge lines had increased their number and speed of their express trains in like proportion, as will be seen by reference to tables published by Herbert Melville in the *Railway Chronicle* of 1846.

On examining the time-tables for 1847, we find that the Great Western express trains alone maintain the same rate. Ordinary trains have fallen from 27 1/2 to 26 miles an hour. Several narrow gauge lines have fallen off in like proportion, particularly the Eastern Counties, on which the goods traffic has increased 200 per cent.

The Edinburgh and Glasgow narrow gauge with gradients nearly as favorable as those of the Great Western, runs no express trains, and has reduced its speed from 27 1/2 to 26 3/4 miles, but then its fourth class maintains 20 1/2 miles an hour, making 13 halts in 46 miles.

Now an examination of the returns made to the Board of trade of the number of passengers of each class conveyed by the British railways for 12 months ending June 1845, would tend to show that in a national point of view, express trains are of infinitely less importance than moderate speed at lower fares.

On 61 railways the numbers stand—first class, 5,300,000; second class, 14,700,000; third class, 22,800,000. That is to say, the third class form 53.28 per cent; the second class, 34.34 per cent.; and the first class only 12.38 per cent. of the whole number conveyed. The second class passengers are invariably at least twice as numerous as first class, and even on railways where the third class trains form only one-tenth of the passenger trains, and travels at a rate under 14 miles an hour, the parties using them rival in numbers the first class.

For example, on the Great Western, there are 44 trains daily, of which 40 are devoted to first and second class passengers, and four only, that is to say, two between London and Bristol, and two between London and Exeter, are devoted exclusively to third class passengers, at 1d. per mile, and a speed under 12 miles an hour, and the proportions conveyed for the year quoted are—first class, 448,661; second class, 1,302,228 1/2; third class, 242,243 1/2.

As express trains are at least 20 per cent. dearer than the dearest ordinary trains, and are in no case more numerous than parliamentary trains, it is obvious that the number availing themselves even of the unrivalled Great Western express must be insignificant

compared with the second and third class passengers by ordinary and parliamentary trains.

But if we turn from those railways which merely afford third class passengers the accommodation enforced by parliament to those which, by numerous cheap trains at ordinary speed seek to develop local traffic—or to the Irish lines, which are exempt from all taxation, and where the third class fare is about a halfpenny a mile—we find the third class far outnumbering the first class.

For instance, on the—

	1st class.	2d class.	3d class.
Dublin and Drogheda...	29,386	216,903	320,221
Eastern Counties (Colchester line).....	92,635	266,190	110,736
Edinburgh and Glasgow..	89,987	178,636	581,406
Manchester & Birmingham.....	91,824	262,218	647,315
Manchester and Leeds.....	115,193	335,337	1,224,417
Midland.....	235,347	595,294	988,503

On all these lines, in proportion as local traffic has been developed, speed has been diminished. It has been found to pay better to promote the intercommunication of neighboring towns by frequent trains, at moderate fares, than to provide luxurious expresses for the wealthy few.

It is not a little curious to find that the third class passengers on an Irish line, 35 miles in length, are within 100,000 as numerous as the first class passengers; and by the same number more numerous than the third class passengers of the Great Western, which traverses and unites within 35 miles London, Slough, Maidenhead and Reading—within 13 miles, Bath and Bristol—and within 42 miles Bridgewater, Taunton and Exeter.—With such figures before our eyes, it is impossible not to conclude that much solid profit and utility has been sacrificed to the brilliant, costly, and exclusive express trains.

The case of the Great Western has been cited, because the advocates of the peculiar principle on which that railway has been constructed claim for it a decided superiority in speed and in economy.

The passenger traffic of the Great Western is greater, with one exception, than that of any other line in the kingdom. The charges are considerably higher than those of the London and North Western and the South Western. The gradients are more favorable by two to one. The express trains are faster, but the average speed is less than that of those two narrow gauge railways.

If the broad gauge really possessed the advantages which its advocates claim, the average speed of the Great Western ought to exceed the narrow gauge railways, and the fares ought to be lower.

All our experience tends to the conclusion that, whether on the broad or the narrow gauge, express speed is very expensive, not only in the wear and tear of the road and machinery, but in the neglect of local roadside, in favor of select terminal traffic.

As we find the local traffic of all railways largely increasing, while the speed of the ordinary trains of all railways has diminished, with the exception of the *show train* used by one-sixth of the customers of a company which bases its reputation on speed, it would seem

that we have reached the limits of profitable speed, especially as the railways lately sanctioned will not possess those admirable gradients on which alone extraordinary speed has ever been found practicable.

The number of persons to whom it is of importance to be conveyed at a speed exceeding 40 miles an hour for 100 miles, to or from the metropolis, must always be limited, and the electric telegraph will tend still more to limit them. But the number of persons and the quantity of goods which may be attracted by frequent trains at low fares, passing between adjacent towns, is incalculable.

In a word, in the present state of the country, cheap, punctual, frequent railway conveyance is to all men who live by labor—farmers, miners, manufacturers, learned professors and mechanics, an absolute necessity: an expensive express is a mere luxury. S.

#### Copper Trade.

It would seem, from the Mining Journal, that efforts are to be made in England to induce the government to reduce the duty on copper ores. Should it prove successful, it will benefit our countrymen now engaged in the copper business—and we hope it may.

The following is a copy of the petition presented to the House of Commons by Mr. Muntz, from the merchants and manufacturers of Birmingham, praying for the repeal of the duties on copper ores.

"Your petitioners are deeply interested in the continuance of the trade of importing copper ores into Great Britain from foreign parts, which trade has increased from 2550 tons of ore, which was the quantity imported in 1831, to 55,750 tons of ore, of the value of nearly £900,000, in the year ending 5th January, 1844, and which has been the means of securing to this country the manufacture and supply of full three-fourths of all the copper consumed in the world.

"In consequence of the duties first imposed by the tariff of 1842, on foreign copper ores imported into Great Britain, the trade in foreign copper ores to this country has been, and is likely further to be materially diminished. To prevent so great an injury, your petitioners pray your honorable House to repeal these duties, and they respectfully offer the following statements (which they are prepared to support by evidence) in support of their prayer.

"Chili, which produces abundance of copper ores, has, for many years, been an extensive consumer of British goods, but, not being a manufacturing country, possesses few means of repayment except by her copper ores.

"The British manufacturers and exporting merchants derive great advantage from the foreign copper ore trade, inasmuch as it forms a remittance for British manufactured goods sent to the countries from whence the ores are imported. The want of a return of this nature is felt seriously by the German, French and American merchants and manufacturers, and prevents their competition with the merchants of this country, severe as it actually is, from being as successful as it probably would be without the advantage possessed by the latter in the shipments of copper ores.

"The diminution, and probable destruction of this important branch of trade, is viewed with alarm by your petitioners, who are deeply interested in its maintenance; and to avert such an evil, they humbly pray your honorable House to repeal the duties on foreign copper ores imposed by the tariff of 1841.

B. COOK, Brass founder.  
STOCK & SHARP, Merchants,  
W. C. ALSTON, Manufacturer, etc."

#### The Rain Gauge.

When in England, a few years since, I saw the *Rain Gauge*, or *pluviometer*, in use. As some of our farmers may have the desire and the opportunity to amuse and instruct themselves in this way, I will give a particular notice of the instrument and its use. It is a contrivance for measuring the quantity of rain that falls. One of the best constructed rain gauges consists of a hollow tube having within it a cork ball attached to a wooden stem, which passes through a small opening at the top, on which is placed a large funnel. When this instrument is placed in the open air, in a free place, the rain that falls within the circumference of the funnel will run down into the tube and cause the cork to float; and the quantity of water in the tube may be seen by the height to which the stem of the float is raised. The stem of the float is so graduated, as to show by its divisions the number of perpendicular inches of water which fell on the surface of the earth since the last observation. After every observation, the cylinder must be emptied.

Another very simple rain gauge may be formed of a copper funnel, the area of the opening of which is exactly 10 square inches. Let this funnel be fixed in a bottle, and the quantity of rain caught is ascertained by multiplying the weight in ounces by 173, which gives the depth in inches and parts of an inch. In fixing these gauges care must be taken, that the rain may have free access to them; hence the tops of buildings are usually the best places, though some conceive that the nearer the rain gauge is placed to the ground the more rain it will collect.

Mountainous countries have most rain, and the reason seems to be, the winds driving the clouds against the rocks and hills, compress them in such a manner, that they are immediately dissolved, and fall as it were at once.

—Ohio Cultivator.

#### Philadelphia, Reading and Pottsville Telegraph Company.

The following gentlemen were elected officers of the Philadelphia, Reading and Pottsville Telegraph company, at a meeting of the Stockholders, held at Reading on the 20th ult.;

#### PRESIDENT.

M. S. Wekersham, Philadelphia.

#### DIRECTORS.

John Tucker, Philadelphia,  
H. H. Muhlenburg, Reading,  
G. A. Nicolls, Reading,  
Francis. W. Hughes, Pottsville.

#### TREASURER.

M. S. Richards, Reading.

#### SECRETARY.

J. Wood, (Operator,) at Philadelphia.

\* This idea is erroneous. It is the attraction of electricity from the clouds by the mountains, that produces the condensation of rain.—[Ed. Sci. Am.]



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. E. MINOR, 106 Chestnut St., Philadelphia.

Saturday, May 1, 1847.

#### Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

#### Ogdensburg Railroad.

The Boston Courier states that a spirited meeting, to promote the success of this railroad, was held on Tuesday evening, at the Tremont House. Patrick T. Jackson, Esq., was called to the chair, and Mr. Edmonds, of the firm of A. & A. Lawrence & Co., appointed Secretary. The meeting was addressed by Abbott Lawrence, S. H. Walley, T. P. Chandler, B. T. Reed, James Hayward, and E. H. Derby. The merits and advantages of the line were pointed out by the several speakers, and Messrs. Parish of Ogdensburg, Walley of Roxbury, Reed, Derby, and Edmonds of Boston, were appointed a committee to adopt preliminary measures to secure the construction of the railroad.

#### Luggage at Depots.

We find the following paragraph in relation to the distribution of baggage at depots, in the Railway Chronicle. This is a subject which deserves attention in this country as well as in England. Serious delays too often occur in the distribution of baggage at depots. Proper attention does not seem to have been given to this matter, by many of the managers of railroads.

"The Great Western has recently introduced some regulations in respect to passengers' luggage, tending to security and economy of time in claiming it at the end of the journey. In addition to the label showing the destination of the luggage, a ticket with the initial letter of the passenger's name is also pasted on it, and the luggage is sorted alphabetically, so that a passenger on his arrival has only to apply to a bin marked with the initial letter of his name."

#### The Funic Propeller.

Some of the English papers speak of a new propelling power, invented by a Mr. Gordon, and to which the above title is applied. The principle appears to consist in producing an expansion of air by heat, and forcing the same horizontally into the water at the stern of a boat. Mr. Gordon says he has succeeded in a boat 26 feet long, and 4½ broad—one man blowing a common small forge bellows, doing the work of two rowers. The bellows entered into a close furnace, luted, and fitted tight; and each stroke passed air through the close fire, the hot products rushing out against the water by a discharge pipe, immersed 12 inches. "The first blast by one man started the boat (weighing two tons,) from a state of rest, three feet in two seconds," the fire, and one man blowing air, doing the work of two men; hence it followed, that suitable close furnaces blown

by a 50 horse power steam engine, will do the work of 100 horses in impelling the vessel, and so on in proportion.

This statement may be correct, but we have no idea of the practicability of propelling large boats by this method.

#### Growth of the West.

The following eloquent allusion to the rapid growth and improvement in the Great West, is from the Cleveland Herald's report of General Cass' late lecture:

"General Cass remarked, that about fifty years ago he stood upon the summit of the Alleghenies, and looked out upon the unbroken wilderness extending over the vast area now occupied by the States of Ohio, Indiana, Illinois, Michigan and Wisconsin, and having a population of only 30,000. Now, five million of intelligent freemen are here pursuing the various avocations of honorable enterprise and industry. Then the glassy surfaces of our beautiful rivers were rippled only by the light canoe of the red man; now nine hundred floating palaces ride on the current of the great Father of Waters and his tributaries. Then the 'multitude marine' of our great lakes was comprised into one solitary vessel; now five hundred are scarcely equal to the demands of commerce on these inland seas. He, with his early lamented friend, General Harrison, had frequently met large numbers of the aboriginal possessors of the soil, in peaceful council, and on the battle field; now they have traversed the uttermost confines of civilization, and stand looking out upon the boundless Pacific.

"He had, when in Europe, spoken of the magnitude and suddenness of the improvements witnessed by the valley of the Mississippi, and they were received with great incredulity."

#### Paine's Marine Locomotive.

We notice accounts lately of a new plan and model lately turned out for steamboats, and which is to be adopted by government for a steam frigate, and is highly recommended as most suitable for the navigation of Long Island Sound. The following is the description given:

"The buckets or paddles are made fast on the cylinder, at an angle of fourteen degrees with its axis, and curve on the face of the cylinder, so as to prevent the lateral escape of water. They neither lift nor bury water, and their hold by actual experiment, is one-twentieth greater than that of the usual side wheels, and heavy or light freighted, they work without any adjustments. Mail steamers are to have duplicate engines, and no spars or other top hamper. Armed vessels, or a cruiser, are provided with spars, schooner rigged, and are constructed so that when a vessel is steaming against wind, they can be laid on the ship's upper work and lashed to their bearings.

"The mould of the vessel is that of an elliptic through the midship cross section, the longest axis being horizontal; this axis shortens as you approach the stem or stern, and as the elliptic figure is continued, and the perpendiculars remain the same, the axis at length shifts and becomes vertical continuing to diminish in its horizontal diameter, till it joins the stem or stern an acute wedge. The horizontal diameters are so shortened as to form an elliptic water line, when a line is passed along the bends or acute curve of the midship elliptics.

"The wheel is a light cylinder in the midships, and works against a column of water that rises up into the vessel's bottom, a little forward of the wheel, and passes aft."

From this description, we infer that the plan of

construction may claim some advantageous points; but that it will move through the water with less resistance than other models, is at least inconsistent with our theory, especially considering the immense resistance which must necessarily be occasioned by the rising up of the water into the bottom of vessel. Perhaps we may think better of the plan when we have a more perfect knowledge of it.

#### German Railways.

I copy the following, says Mr. Hagar, from Gallignani's Messenger:

"Railway communication is proceeding rapidly in Germany. Next year, the line will be complete between Cologne and the extreme frontier of the east, north and south of the Germanic Confederation. Vienna, Breslau, Berlin and Hamburg are now connected together by a continuous railway. The Augsburg Gazette informs us, that a meeting has been taken place between the directors of the different railway companies possessing this vast range of lines. Between Stettin and Vienna there is a distance of 225 French leagues, (562 English miles,) and between Vienna and Hamburg, 250 French leagues, (625 English miles). This is the greatest extent of continuous railway in one line. The various directors have agreed on an arrangement of departures in correspondence with each other, so that the distance between Vienna and Hamburg may be cleared in 49 hours, comprising stoppages; and between Vienna and Stettin, 40 hours. The trains leave Vienna at 7 o'clock P. M., and arrive at Breslau the next day at noon; it leaves Breslau at 4 o'clock P. M., and arrives at Berlin at 6 A. M.; it leaves again at 7 A. M. for Hamburg, and Stettin. The back train leaves Hamburg at 1 P. M., and Stettin at 4; it reaches Berlin at 9 o'clock at night, and leaves again at 11, and arrives at Breslau next day at 11 A. M., and Vienna the second day at 7 in the morning. The works in the southern line (from Vienna to Trieste) are rapidly progressing. When this line is finished, travellers may look themselves from Hamburg to Trieste!"

#### Baltimore Copper.

The Cleveland Herald alludes to the notice in the Baltimore American, not long since, of a quantity of pig copper, for manufacturing purposes, smelted at the Baltimore company's works, on the south side of that harbor. The Herald subjoins the following remarks:

"The ore from which this copper was obtained must have been brought either from Cuba or from the western coast of South America. If from Cuba, it was brought from the mines to navigable waters, from 20 to 40 miles, on the backs of mules, unless a proposed railway to the mines has been completed. This ore, we suppose, would yield about 20 per cent. of copper.

"If it came from South America, it was transported on mules about 100 miles from mines worked by men whose drinking water is carried in the same way 20 miles. We should in this country think these very serious obstacles to success in mining of any sort.

"On Lake Superior all the mines likely to be prosecuted are near the water, and we should suppose the products could be taken to Baltimore at much less cost than from Cuba even. The feasibility of smelting on the spot is however generally conceded, so that there will be no loss accruing by the transportation of useless matter.

"The mining business in the upper peninsula of Michigan bids fair before the lapse of many years to become of great importance, and, combined with the valuable fisheries of Lake Superior, will imperatively demand of the government the construction of a ship canal around the falls of Saut St. Mary. Let this be done, and the shipping interests on the other lakes would find a greatly enlarged demand

for the services of their 4 or 500 steamers or sailing vessels."

A railroad connection with Pittsburg, says the *American*, would give Baltimore access to this source of lucrative trade in the lake country. Pittsburg has her canal to Erie; she will soon have her railway connection with Cleveland. The resources of Lake Superior are just beginning to be touched. Her fisheries promise to be an exhaustless reservoir of wealth; her mineral treasures are immense.—Look at that gigantic system of Mediterranean seas which bound our northern frontier—consider the active energies of the population on their nearer border, the facilities of navigation, the productiveness of the adjacent regions, and, judging of the rapid, yet steady growth of prosperity which has already furnished from four to five hundred steamers and vessels of burden for the business of traffic, and some estimate may be formed of the future trade which is to crowd the cities and harbors of the great lakes.

#### Railroad Iron and Iron Manufacturers in Maine.

We learn from the Portland Advertiser that at the KATAHDON Iron Works—some 50 miles above Bangor—they have had one blast furnace in successful operation during the past winter, and are making about 50 tons of pig iron per week. This iron has acquired the very highest reputation among all the manufacturers of note in New England, and commands the highest price. The ore is a pure oxide—yielding, upon an average, over 50 per cent. of pig metal, and much of it is said to yield even 70 per cent.—equal to the richest ores of Cumberland, or those of Sweden and Russia. Some difficulty was at first encountered, and the furnace was entirely closed for want of knowledge of the quality of the ore, and a neglect to use the necessary argillaceous substance as a flux. By a series of experiments the quality of the ore has been tested, and the most admirable success has been the result, and a new furnace is soon to be put up.

We are informed, says the Advertiser, that the agent of the company was in this city a day or two since, with a view to contract with the Portland company for a supply of pig iron for their works, and that several tons of pig iron are to be forwarded to the company here as samples, for the purpose of being tested by them. This seems likely to open an extensive trade with Bangor, which will prove highly advantageous to both places.

At Bangor are to be found machine shops by far the most extensive in the State, for the manufacture of iron, including castings and heavy steam engines. The shops of Messrs. Hinckley & Egery and Franklin Mussey & Co., are both extensive establishments—and their engines enjoy the highest reputation.—The Bangor papers state that awhile ago a large engine from the shop of F. Mussey & Co. had been completed and put up at Lowell, Mass., for a steam saw mill.

The works of the Portland company will however be by far the most extensive establishment of the sort in Maine. We learn that this company have engaged the services of two of our most accomplished mechanics to superintend the erection of their buildings, which are to be built by the day, instead of by the job, and that a strong force is at work in preparing the foundations for building.

From the same paper we learn that the works at Pembroke, Washington county, heretofore engaged in rolling hoops of bar iron, have been fitted up for working railway bars, and that they are now turning 80 tons of rails per week, having been in operation about two weeks only.

This mill is now owned by Horace Gray & Co., of Boston, who are making rails also on the mill dam at Boston, and are said to be putting up another large mill at South Boston, to cover some 43,000 square feet, or an acre of ground.

Whoever will take the trouble to ascertain the quantity of railroad iron required in this country the present year, and the amount of the manufacture, will see that the demand must be beyond the supply. This will undoubtedly lead to considerable importations of railway bars the present and ensuing year. American iron is said to be worth from seven to ten dollars more per ton than the iron imported from Great Britain.

Experience has shown that the best quality of iron has been the most economical for railway uses in England, and there is a difference of from five to ten dollars in the price of the different qualities in the English market. The quotation prices for export are for the common or cheap iron. The manufacturers of railway iron in this country get orders readily for all they can turn out at about seven dollars per ton above the present cost of importation. This is owing to the superior quality of the iron.

#### Genesee Valley Canal.

This work, says the Rochester Democrat, has triumphantly vindicated itself. It was opened for business to Danville, 53 miles, seven years ago. The increase of tonnage during that time has been as follows:

1840.....	13,653	1844.....	65,070
1841.....	26,892	1845.....	75,586
1842.....	41,960	1846.....	87,615
1843.....	48,313		

The original opposers of this work pretended that all the freight destined to the Erie canal would have found its way to that channel had not the Genesee work been constructed. But the statement above proves the contrary. The principal article of trade is lumber, which could never have reached Rochester for shipment east, had not the Genesee canal been constructed—the land carriage being too expensive. Formerly the lumber in the region now traversed by the Genesee Valley canal, sought a market through the Allegheny river. It would have continued in that channel to this day, had not the canal been constructed.

The business now done upon the canal, as far as finished, exhibits a revenue to the State far beyond what its opponents predicted.

The tolls collected upon the Erie canal from produce which came to it from the Genesee Valley canal in 1846, amounted to.....\$126,733 52  
Erie tolls on goods for Genesee Valley canal..... 23,900 57  
Tolls collected on the Genesee Valley canal..... 23,173 93

Total.....\$173,108 02

Interest on its cost (\$1,450,365) at 5 per cent. 70,018

Repairs and Superintendence..... 15,776

85,784

The excess of receipts over expenses.....\$86,313

Some may object that we give to this canal all the tolls of the Erie, going and coming from it.—Then allow but half the tolls on the Erie to be credited to it, and there still remains an excess of over \$10,000. If the tolls on lumber alone are estimated: the tolls on merchandize and its own tolls, there still remains an excess of \$5,562.

None will doubt that the business done on the Genesee canal the second year after its completion was as much as would be the natural business it would

throw into the Erie, had it not been constructed.—If so, the wonderful increase created by its construction is so much to its credit with the Erie. In 1841, the tonnage was 26,892—in 1846, 87,615. The revenue from the tonnage for these two years, shows that the increase of the revenue of the Erie from the business of the

Genesee over that of 1841, amounts to.....\$103,921 30  
Add tolls on Genesee..... 23,448 57

Total revenue.....\$126,669 77

Deduct interest on the cost of finished part.....\$70,018 25

Repairs & superintendence. 17,614 90—87,633 46

Gained by the canal.....\$39,087 31

Figure it as you will, no other result than a profit to the State, instead of a heavy expense, can be made.

The bill now before the Assembly is to provide for its completion, by annual appropriations.

The sum proposed for the coming season is \$200,000

Materials now on hand..... 110,872

\$310,872

Great injustice has heretofore been done to the section of country to be benefited by this canal, but we hope for better treatment in future.

#### Navigation of the Lakes.

An act has just passed the Legislature of Michigan authorizing the construction of a ship canal around the Sault Ste. Marie, to connect the navigation of Lake Superior with that of the Lower Lakes.

The bill gives 500 feet right of way, and is said to be everything that the friends of the measure could desire. Upon this event, so auspicious to the interests of the northwest and of the Union generally, the Albany evening Journal remarks as follows:

"Individual enterprise will now accomplish what should have been done years ago by the general government. The business interests of the west have suffered greatly from the laggard movements of Congress. This canal will open to the commerce of the lower lakes a navigation of a thousand miles. The fisheries of Lake Superior will be rendered available, and facilities will be afforded to secure a prompt development of the great mineral wealth of this immense region. Now schooners and steamboats are borne over the rapids upon railways, at heavy cost and great risk. When this canal is constructed, an uninterrupted communication will be opened; and a steamboat may start from Quebec and move up to Lake Superior without an impediment. It is a disgrace to the national government that this important work was not sooner completed: but 'better late than never.'"

#### Locomotive Struck by Lightning.

On the 13th of March, a locomotive attached to the passenger train passing from Atlanta to Augusta, Ga., was struck by lightning. The fluid passed along the machinery of the engine to the cars, shaking some of the inmates pretty severely, but doing no damage. It is supposed that Mr. Townsend's horizontal smoke pipes may be so connected as to form a perfect protector of the cars from lightning.

#### Foreign Correspondence.

We published some time since, an extract from a letter written by Mr. E. Hedge, then in London—we now give another from the same source, which has been delayed for some time—but it will be followed by others from time to time as they may come to hand.

The table of receipts on the English railways, given herewith, exhibits an astonishing business—and from it we may anticipate more fully, what will be the result of our railway system in this country. We shall continue this table for several weeks, giving two weeks at a time—as long as we are furnished with the figures.



7 Howard St., Norfolk St. Strand,  
London, March 24, 1847.

DEAR SIR—I received per the ship Oxford, a file of the Railroad Journal for January, for which I am greatly obliged to you. It seemed while reading them, like looking some old friend in the face, and hearing him talk upon well known and familiar subjects. I see you still keep the railroad fever at a welding heat, and there appears to be great anxiety to carry through the great main lines at once.

That you may see something of the amount of money which now passes through the hands of the various railway companies here, I have copied the weekly receipts of a few of them—and will continue to copy and send them, if they will be of interest to you. It appears that on, say, 30 roads, and their branches, amounting to 2187½ miles, there is about \$30,000,000 a year received! How will this sum compare with the amount received by the proprietors of stage routes, the same distance, 20 years ago?—There are now completed and in use in this country, 97 roads and branches, and in course of completion 349; and applications before Parliament the present season for 300 more. I can find no book which gives the length in miles of the roads in course of completion, or those before the parliament at this time.—Most of the last, are quite short, as you will see by examining the map and explanation (just published) which I send by the same mail which takes this letter. I promised to send you a book containing a list of all the roads—their length—cost, &c.—but I find on examining it, that it is very imperfect—in fact wholly unsatisfactory, and would afford you no reliable information, if I were to send it. I send you also by this mail, a pamphlet just published by a gentleman with whom I have become acquainted, upon a new plan of propelling water craft, without the aid of steam, which he calls the "*Fumific Impeller*." It appears to be very nearly the same plan tried by Mr. Hall, an engineer formerly upon the Troy and Schenectady railroad, except that he directed the current of air directly through the bottom of the vessel, and thence caused it to pass toward the stern, confined in an inclined ways, that the buoyant quality of the air should by means of lifting the stern, cause the boat to move forward. Your friend R., with his partner Mr. Adams—who has recently obtained a patent for a new railway car spring—is manufacturing cars quite extensively a few miles out of town. I have not yet visited the establishment, though I intend to do so.

I have been here two months, and have secured all the patents necessary—have been introduced to some of the great railway managers and engineers: among them, Messrs. George Stephenson, Brunell, and Locke, who is now engaged on some of the continental works, I therefore hope to be able soon to say we have had a trial of the "cast rail," at least in England. Mr. Richardson, resident engineer on the Eastern Counties railway, has invited me to visit him at Hadleigh, to inspect a *skew bridge*, built of brick, a very long one, which crosses the stream at 30° skew—an angle hitherto never attempted. He says he believes it practicable to build *skew* bridges at almost any angle, as far as safety is concerned. If they can be built so as to be entirely safe, no doubt, in many instances, they will be the means of saving considerable expense, as streams and roads can be crossed wherever it is necessary, without regard to so locating a road as to pass them at right angles, or nearly so. I will write you per next steamer, and hope to have something of interest to communicate. Very respectfully,

Your obedient servant, E. HEDGE.

RAILWAYS.

	Length in miles.	Week ending Feb.	Amount.			Week ending Feb.	Amount.		
			£	s.	d.		£	s.	d.
Arbroath and Forfar.....	15	13	153	7	6	20	216	18	10
Chester and Birkenhead.....	14½	12	408	11	9	19	433	3	8
Dublin and Drogheda.....	31	11	621	16	5	18	633	15	10
Dublin and Kingstown.....	6	16	531	13	6	23	547	0	0
Dundee and Arbroath.....	16½	14	250	6	11	21	288	17	6
East Lancashire.....	28	13	675	4	11				
Eastern Counties.....	136	14	8,070	17	0	21	8,010	5	6
Edinburg and Glasgow.....	46	13	3,201	8	2	20	3,112	16	8
Glasgow, Paisley and Ayrshire.....	51	13	1,925	3	8	20	1,933	9	3
Glasgow, Paisley and Greenock.....	22½	13	830	16	3	21	875	12	0
Great Western.....	221½	14	13,966	16	6	20	14,445	12	8
Great Southern and Western—Ireland.....	56½	13	1,037	2	11	20	1,060	12	11
London and North Western.....	333	13	31,918	8	1	20	32,224	12	0
London and South Western.....	92½	14	4,543	7	10	21	4,955	3	11
London, Brighton and South Coast.....	95½	13	3,955	16	8	20	4,500	15	4
London and Blackwall.....	3½	14	607	16	9				
Midland, Bristol and Birmingham, Leeds and Bradford, Nottingham and Lincoln—4 roads.....	268½	13	15,831	17	11	20	15,477	9	6
Manchester and Leeds—including Bolton and Preston District.....	94½	13	6,677	14	7	20	7,030	10	1
Manchester, Sheffield and Lincolnshire.....	40	13	1,659	2	9	20	1,686	13	7
Newcastle and Berwick.....	7	13	444	8	2	20	491	6	7
Newcastle and Carlisle.....	61	13	1,872	17	6	20	1,883	4	7
Norfolk.....	58	14	1,318	18	7	21	1,356	3	4
North British—including Dalkieth Branch.....	79½	13	1,263	19	4	20	1,149	1	6
Preston and Wyre.....	19	13	518	17	11	20	539	10	6
South Eastern.....	143	13	4,939	4	7	20	5,299	8	0
South Devon.....	20	12	358	0	0	19	360	1	10
Shrewsbury and Chester.....	15	12	302	11	10	19	312	13	6
Taff Vale.....	30	13	929	9	9	20	1,438	8	11
Ulster.....	25	14	617	12	6				
York and Newcastle.....	107	13	7,465	3	5	20	6,637	9	3
York and North Midland—with Leeds and Selby.....	155	13	4,975	18	9	20	4,998	11	4
Paris and Rouen.....	84	15	5,030	0	0	22	5,610	0	0
2187½			£127,199	0	0		£127,384	9	6
			or, \$610,805 92				or, \$616,056 94		

Removing Incrustation in Boilers.

A late number of the London Mining Journal, contains the following in relation to a mode recently made public, for removing the incrustation in steam boilers—an improvement well worthy the notice of those interested in the subject.

M. DEPOLAR—says the Journal—of Regent street, has just patented some improvements in preventing and removing incrustation in steam boilers, consisting of a compound, to be used, mixed with the water for the purpose of preventing the precipitate matters contained in it from incrusting the boiler.—The substances forming this compound are first, dry tannic or gallic extract, obtained from oak, gall-nuts, or any other substance yielding it; secondly, muriate of soda; third, hydrate of soda; and fourth, subcarbonate of potas. These ingredients are mixed in certain proportions, varying with the nature of the water (which is to be first analysed, to ascertain the quantity of precipitable matter contained in it), and also, according to the boiler, whether stationary or locomotive. For a stationary engine, the patentee recommends, for 336 hours' supply of fresh water per horse power, a compound of 12 ozs. of muriate, 2½ ozs. of hydrate of soda, 2 drachms of dry tannic or gallic extract, and half an ounce of subcarbonate of potas; but if salt water be mixed with the fresh water, or sea water be used in the boiler, then the muriate of soda is to be omitted, and 6 ozs. of hydrate of soda is to be used instead of 2½ ozs., and 5 drachms of tannic extract instead of 2. For locomotive engines running on the average of 140 miles per day, the patentee increases the above proportions about one-fifth. The patentee recommends the above compound to be added at intervals—viz: a portion every two or three days—in stationary engines it may be added to the boiler at once, and in marine engines it may be mixed with water in the boiler or in the feed tanks, but in locomotive engines it is better to mix it with the water in the tender. The patentee does not confine himself to the above proportions of the different ingredients; but what he claims is a

compound of fixed alkalis, with tannic or gallic extract, for the purpose of preventing incrustations in boilers.

Consumption of Smoke.

Among the many inventions for this purpose—and the numerous attempts which have so often been made to effect this most desirable object—the following invention, lately patented in England, is worthy of note. An exchange says that, a patent has been obtained by Mr. Lord, of Allerton, Chester, for an ingenious application of two furnaces or sets of fire-bars to one boiler, for steam engine or other purposes, whereby the gases from the fuel freshly applied to one grate pass over the incandescent coke on the other, and the entire carbonaceous matters are thereby consumed. The application of these is directed in such a manner, that the entire heat is applied to the whole boiler, although but one furnace is at a glowing heat. To effect this, the boiler is provided with a water space about the centre, extending across the upper half of the flue, and forming a bridge to direct the course of the smoke. The grates are moveable on rails; and when the fires are first about to be lighted, they are both brought towards the furnace doors, by which means all the dampers are open; when a clear red heat is obtained, one is pushed backwards to a certain point, and one set of dampers only kept open; a fresh supply of fuel, is then supplied to the other fire grate—the unconsumed carbon therefrom, passing under and through the clear fire of the first, is thoroughly decomposed, and the gases produced pass up the chimney. As soon as a bright red heat is obtained in the last fed fire, the same process is repeated with the other set of bars, and the operation has the same effect as before. There have been several modes invented of passing the unconsumed carbon of one fire over the incandescent fuel of another, but it strikes us at the moment that this appears the most ingenious, and likely to prove the most economical of any we have yet seen of this description of furnace for the consumption of smoke.

## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Fall River Railroad Company, under the Act of April 16, 1846.

Capital stock	
Increase of capital since last report	
Capital paid in, per last report	\$280,460 00
Capital paid in since last report	316,410 00
Total amount of capital stock paid in	596,870 00
Funded debt, per last report	
Funded debt paid since last report	
Funded debt, increase of, since last report	
Total present amount of funded debt	
Floating debt, per last report	
Floating debt paid since last report	
Floating debt, increase of since last report	
Total present amount of floating debt	945,115 08
Total present amount of funded and floating debt	
Average rate of interest per annum on do.	6 per cent.

## COST OF ROAD AND EQUIPMENT.

For graduation and masonry, per last report	
For graduation and masonry, paid during the year	
Total amount expended for graduation and masonry	214,900 38
For bridges, per last report	
For bridges, paid during the past year	
Total amount expended for bridges	5,677 48
For superstructure, including iron, per last report	
For superstructure, including iron, paid during the past year	
Total amount expended for superstructure, including iron	360,708 55
For stations, buildings and fixtures, as per last report	
For stations, buildings and fixtures, paid during the past year	
Total amount expended for stations, buildings and fixtures	29,558 95
For land, land-damages and fences, per last report	
For land, land-damages and fences, paid during the past year	
Total amount expended for land, land-damages and fences	91,812 96
For locomotives, per last report	
For locomotives, paid during the past year	
Total amount expended for locomotives [and cars]	73,653 64
For passenger and baggage cars, per last report	
For passenger and baggage cars, paid during the past year	
Total amount expended for passenger and baggage cars	
For merchandize cars, per last report	
For merchandize cars, paid during the past year	
Total amount expended for merchandize cars	
Total amount expended for gravel and hand cars	
For engineering and other expenses, per last report	
For engineering and other expenses, paid during the past year	
Total amount expended for engineering and other expenses	19,491 17
[Total amount miscellaneous and general expenses including interest]	32,979 99
Total cost of road and equipment	

## CHARACTERISTICS OF ROAD.

Length of road	41-830 miles.
Length of single track	41-830 miles.
Length of double track	
Length of branches owned by the company, stating whether they have a single or double track	
Weight of rail per yard in main road	52 lbs.; about 3 miles
Weight of rail per yard in branch roads	of road, 66 lbs.
Maximum grade, with its length in main road	44-88 ft. length 2400 ft.
Maximum grade, with its length in branch roads	
Total rise and fall in main road	Rise 482,708, fall 391,458.
Total rise and fall in branch roads	
Shortest radius of curvature, with length of curve in main road	956 ft. for 400 ft in length.
Shortest radius of curvature, with length of curve in branch roads	
Total degrees of curvature in main road	685° 39' 54" 5".
Total degrees of curvature in branch roads	
Total length of straight line in main road	30-338 miles.
Total length of straight lines in branches	
Aggregate length of truss bridges	67 feet over road.
Whole length of road unfinished on both sides	About one mile.

## DOINGS DURING THE YEAR.

Miles run by passenger trains	96,759
Miles run by freight trains	13,370
Miles run by other trains	8,790
Total miles run	48,910

Number of passengers carried in the cars	59,389
Number of passengers carried one mile	
Number of tons of merchandize carried in the cars	5,357
Number of tons of merchandize carried one mile	
Number of passengers carried one mile, to and from other roads	
Number of tons carried one mile, to and from other roads	
Average rate of speed adopted for passenger trains, including stops	22 miles per hour.
Average rate of speed adopted for freight trains, including stops	15 miles per hour.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile	
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile	

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron	\$3,500 74
For repairs of truss bridges	
For renewals of iron, including laying down	
For wages of switch-men, gate-keepers and flag-men	
For removing ice and snow	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses	
Total for maintenance of way	

## MOTIVE POWERS.

For repairs of locomotives	
For new locomotives to cover depreciation	
For repairs of passenger cars	
For new passenger cars to cover depreciation	
For repairs of merchandize cars	
For new merchandize cars to cover depreciation	
For repairs of gravel and other cars	
Total for maintenance of motive power	3,979 80

## MISCELLANEOUS.

For fuel and oil	5,375 70
For salaries, wages and incidental expenses, chargeable to passenger department	3,498 71
For salaries, wages and incidental expenses, chargeable to freight department	1,719 35
For gratuities and damages	
For taxes and insurance	
For ferries	
For repairs of station building, aqueducts, fixtures, furniture	
For interest	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, (Taunton Branch, New Bedford and Taunton and Boston and Providence)	28,416 32
For amount paid steamer Perry, R. B. Kinsley, etc.	4,218 18
For amount salary to treasurer, superintendent	2,200 00
For amount paid miscellaneous exp. transportation	851 82
For amount paid other companies as rent for use of their roads, specifying each company	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	

## INCOME DURING THE YEAR.

For Passengers:	
1. On the main road exclusively, including branch owned by company	3,790 09
2. To and from other roads, specifying what: [Taunton Branch railroad]	47,799 99
For Freight:	
1. On main road and branches owned by company	713 48
2. To and from other connecting roads: [Taunton Branch railroad]	10,902 50
U. S. mails, rents and express	983 06
Total income	64,119 19
Net earnings after deducting expenses	10,335 50

## DIVIDENDS.

Surplus not divided	
Surplus last year	
Total surplus	

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges	
Buildings	
Engines and cars	



The foregoing is exclusive of the use of locomotives and cars for the construction of the road between Myricks and South Braintree.

All which is respectfully submitted.

Peter H. Pierce, Nahum Stetson, Caleb S. Holbrook, Richard Borden, Nathan Durfee, Royal Turner, Andrew Robeson, Jefferson Borden, C. C. Gilbert, David Anthony.

#### WHITEWATER VALLEY CANAL.

We mentioned yesterday the prospect of an early completion of the repairs on this work, and the probability that in the course of 70 or 80 days the Whitewater valley would again be open to Cincinnati. We learn since from the Connersville 'Spirit of the Valley,' that the Board of Directors have concluded an arrangement with Messrs R. Calvin & Co., by which the canal will be put in navigable order by the 10th of July next. This arrangement embraces that portion of the canal between Brookville and Lawrenceburg. The other portion of the line has been for some time under contract, and the repairs are in rapid progress.

Messrs. R. Calvin & Co. have already engaged a part of the assistance they will require, and will immediately commence active operations.

The only difficulty now is as to funds, the company have exhausted its resources in securing the repairs at other points. Something has been done in this city to overcome this difficulty, but much more is wanted:—The Connersville 'Valley,' and Brookville 'American' urge upon the farmers, millers, and others along the line, the duty of aiding all they can, and we trust their solicitations will be heeded. As shown by the following extract from the American, a loan of credit is all that is asked immediately; and those who have good crops in, will find this a very profitable loan to them, if they take into their calculations the difference in price which the produce will bring with the canal repaired and in operation, above what they will be able to obtain if the work remain in disuse. The American says:

"The company have procured some neat blank notes of the denomination of \$5. They are getting as many of these signed as possible by those interested in the canal. They are made payable to the canal company on the 1st day of January next. These are immediately endorsed by the secretary of the company, and paid out to contractors on the canal. By the credit of the individuals who sign them and the endorsement of the company, they will obtain good credit, and in this way the work will be done.

"The credit notes are receivable for water rents and tolls due the company. When they are paid a certificate is given to the individual for the amount, with six per cent. interest, pledging the canal and company for its redemption. This certificate will also be received for rents and tolls. In this way those who lend a helping hand in this hour of need, will lose nothing, nor will they have unprofitable company stock. They only lend their credit to the company in the first place, and receive in pay a certificate which will always be good for tolls, etc. It amounts in fact only to paying a little toll in advance

in order to repair the canal. Who will not do it? Without some aid of this kind, the canal cannot be repaired, nor can one wait for his neighbor, for all must do something. It is no trifle, and there must be unity of heart and purse to set things in motion."—*Cincinnati Gazette*.

#### ITEMS.

**Baltimore Railway Meeting.**—At a meeting of the stockholders of the Baltimore and Ohio railroad company, at Baltimore on Monday last, the following resolutions were adopted:

Resolved, By the stockholders of the Baltimore and Ohio railroad company, that this company deems a connection between Baltimore and Pittsburg by railroad desirable, if it can be obtained on reasonable terms.

Resolved, That this company cannot consent to look to Pittsburg as the only western terminus of its road.

Resolved, That this company will not consent to the making of its road to Pittsburg by the Northern or Cassellman's river route.

Resolved, That the whole subject be referred back to the Board of Directors of this company, with power to act according to their discretion.

Mr. McLane expressed his opinion that the connection with Pittsburg was matter of secondary importance, compared with the advantages to be derived from striking the Ohio, as far south as Parkersburg, Fishing Creek, or even Fish Creek. He also submitted a comparison of the cost of these several routes.

**Increase of the Coal Trade.**—The Mine Hill and Schuylkill Haven railroad has increased its tonnage largely up to April 10th, this year, over the corresponding period last year. This company is extending a branch of its road into the Swartara coal region, and otherwise enlarging and improving its capacities for a more extensive business during the summer and fall. Authority has been given to the company by the Legislature at its last session to run locomotive engines over the road. This, it is believed, will afford greater facilities to the operators, and considerably increase its business and tonnage.—It seems to us that the prospects of increased and increasing business in the region, is decidedly flattering at this time.—*Miners' Jour.*

**Transportation to the East.**—A Pittsburg letter in the Philadelphia American, says that the quantity of western produce in that city awaiting transportation to the east, by the Pennsylvania canal, is unparalleled. Among the items mentioned, are large accumulations of pork, and the quantity of whiskey destined for the east, is said to be a new feature in the trade.

**Galena and Chicago Railroad.**—Mr. Morgan, the engineer of this projected road, finds by survey, that it will be of easier grade than even that of the famous Reading railroad. Now that the Southern railroad of Michigan is to terminate at New Buffalo, it is intimated by the President of the Galena and Chicago company, that a negotiation will soon be opened with the Michigan company, to form a connection with it at an early day, and it is

probable that the survey may be commenced immediately by Mr. Morgan. Some desirable amendments to the charter of the Galena and Chicago company have been passed by the Legislature, settling all doubts as to the validity of the charter, and the hope is expressed by the President, that arrangements will be made for the commencement of the road the present year.

**The Railway Companies, west of Albany,** have declined taking any more freight. They have as much on hand as they possibly can transport before the opening of the canal. If they were permitted to carry freight throughout the year, they would make arrangements to increase the number of cars and locomotives.—*N. Y. Jour. Com.*

**Great Western Railroad, Canada.**—The work on the road which was commenced, and suspended on account of the agitation of the Oregon question, is now resumed, and it is believed by persons familiar with the subject, that the amount subscribed, \$5,000,000, and partly paid in, will far exceed the amount required to finish the work. The Niagara bridge, the commencement of which has been prolonged for the want of the Queen's ratification of the charter on the Canada side, has been commenced, and the stock to the amount of \$200,000 has been taken, which is supposed to be sufficient to complete the work. The next enterprise which is identified with the two former, is the completion of the Lockport and New Falls railroad to Rochester, the whole distance from Rochester to the Falls is 81 miles, according to the surveys, 26 miles of which road is built and in operation, and only a link of 55 miles remains unfinished, and about one-half of the stock for that portion of the road has already been taken, say \$400,000. When the western list is finished, it will be taken east, where the balance will be filled up. When the road is finished, it will complete a chain of railroad from Boston to a point in Canada, opposite Detroit, Michigan, and when the Hudson or Harlem road is finished to Albany, it will make a line from New York city to the same point via Niagara Falls and through Upper Canada.

**Manufacture of Glass in the United States.**—We present our readers with the following returns of the amount of various articles used in the manufacture of flint glass, in the 10 furnaces in operation, viz:—1,200,000 bush. American bituminous coal; 50,000 bushels of foreign do.; 4,500 tons of Anthracite coal; 8,000 cords of wood; 3,600 barrels of resin; 3,555 tons of siliceous sand; 956 tons of fire clay; 950 tons of iron; 20,400 lbs. of borax; 3,616,000 lbs. of Missouri lead; 2,875,000 lbs. of pearl ash; 272,000 lbs. of saltpetre; 1700 tons of straw; 47,500 staves; 270,000 hoops; 1,400,000 boards; 6,500 lbs. of magnesia; 22,500 lbs. of Arsenic; \$200,000 worth of brass, britannia and tin ware. It is computed to bring these various articles to the factories, the occasional use of 57,745 tons, is equal to the constant employment of 5,393 tons coastwise, lake and river shipping. The manufactured goods require nearly as much more to transport them to market.

making a total of about 10,000 tons consumed, lake and river shipping employed in the business constantly.—*N. Y. Farmer and Mechanic*.

**New York and Erie Railroad.**—We regret that so large a portion of the time of the Assembly should be consumed in a foolish attempt to change the location of the New York and Erie railroad. The work is progressing upon the route laid out by the commissioners, with considerable rapidity. A change would occasion a great loss, and perhaps prevent the construction of the work. We hope the House will make short work of this bone of contention. None but a few disappointed individuals care a farthing about the controversy; and it is wrong to take up so much time with so profitless a subject.—*N. Y. Paper*.

**Auburn and Rochester Railroad.**—The public will be gratified to know that the bill authorizing the Auburn and Rochester railroad company to borrow \$600,000 to reconstruct their track with a heavy rail, 56 lbs. to the yard, has passed the New York Senate. The present frail structure is quite insufficient for the business of the road. The accidents are numerous and vexatious—though few in comparison with other roads on the same line, owing to greater care in management.

**Iron Ropes.**—This is an age of improvement, if the many ingenious contrivances and the making use of new combinations of long known materials, may be called improvements. Thus, we have paper made of straw, and grass, and seaweed; feather beds made of husks of Indian corn, and of birch brooms; beaver hats made of silk plush; and ropes made of iron wire. We learn from an English paper called the Atmospheric Railway Gazette, that a rope has been manufactured at Andrews & Smith's iron and wire rope works, which is 3600 yards long, 3 inches in circumference, and weighs seven tons and

fifteen hundred weight. This is a large rope, and must be immensely strong. It is to be used on an inclined plane, near Bolton, England.—*Schaghtkill Journal*.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.**—Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Catherne Rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids, with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 31 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEORGE S. GREENE, Eng. K. & P. R. R.

ENGINEERS OFFICE, K. & P. R. R.,  
Brunswick, Me., April 6, 1847.

1m16

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, giller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

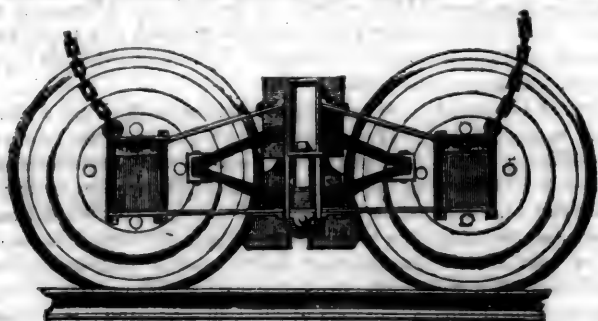
Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.			STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.		
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.		
11	4	13 5	10	24 -		50	15-16		20
13	3	8 3	8	16 -		27	11-16		13
14	3	6 11	7	12 8		17	9-16		10
15	2	5 9	6	9 4		13	1-3		7
16	2	4 3	6	8 8		10	7-16		7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.

### RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the New Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,]

T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,]

JOHN LEACH,

Jamaica November 12, 1845.

1y19

Supt. Motive Power.



**RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

**TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited.

S. C. FIELD.

**TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being *pick pine*. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CHONKITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 21 of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

16 11

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Buren, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Starnes, Supt Elizabeth town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hineley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York.

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 2 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 223 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,234 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge.	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia.  
1y10 near Third,

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25 28 Platt street, New York.

## RAILROAD IRON.

MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\* Maryland.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 106 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

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SATURDAY, MAY 8, 1847.

[WHOLE No. 568, VOL. XX

## AMERICAN RAILROAD JOURNAL. Office at the FRANKLIN HOUSE, 105 Chestnut Street, PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in those undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD. Passenger Notice, Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m. Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 2½ p.m. Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 6 a.m., 4½ p.m., and 9 p.m. Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Sup't.  
BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad. Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I. Tannan, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M. The Train from Philadelphia arrives at Reading at 12 18 M. The Train from Pottsville arrives at Reading at 10 43 A. M.

	Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50 and \$3.00		
" " Reading,	58	2.25 and 1.90		
" " Pottsville	34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.  
Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25. On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort. The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

## BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

### SUMMER ARRANGEMENT, April 1, 1847.

PORTLAND TRAINS. Leave Boston at 7 A.M. and 2½ P.M. Leave Portland at 7½ A.M. and 3 P.M. GREAT FALLS TRAIN. Leave Boston at 5 P.M. Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS. Leave Boston at 11½ A.M. and 6-20 P.M. Leave Haverhill at 6½ A.M. and 4½ P.M.

READING TRAINS. Leave Boston at 8½ A.M. and 8½ P.M. Leave Reading at 6 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS. Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M. Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M. The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—Leave New York at 7 A.M. and 4 P.M. " Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—Leave New York at 3 P.M. " Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 3 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board.

## NORWICH AND WORCESTER RAILROAD. Summer Arrangement. Change of

Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich at 6 a.m., and 4½ p.m. Leave Worcester, at 6½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't.

**LITTLE MIAMI RAILROAD—OPEN**  
TO SPRINGFIELD—Distance 83 miles—  
connecting at Xenia and Springfield with Messrs. Nell, Moore, & Co's, daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon...\$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 1/2 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cambridge at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**  
Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13 1/2

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 3v19ly

**BALTIMORE AND SUSQUEHANNA**  
Railroad—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
Arrives at.....9 a.m. and 6 1/2 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 1/2 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 1/4 p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

FARE.  
Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12 1/2  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg in connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**CENTRAL RAILROAD-FROM SAVANNAH**  
to Macón. Distance 190 miles.  
This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$5 00. Freight—  
On weight goods generally... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime).... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.  
Goods addressed to F. WINTER, Agent, forwarded free of commission.  
THOMAS PURSE, Gen'l. Sup't. Transportation.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23, 1846, the cars will run as follows:  
Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrisania, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.  
Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

RETURNING.  
Leave Pleasantville, at 8, 10, [freight train,] and 11, a.m.; 1 30, and 4, p.m.  
Leave White Plains, at 8 15, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 30, p.m.  
Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.  
Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 30, 4, and 4 50 p.m.  
Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.  
Leave Yorkville, at 8 15 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.  
Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.  
Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.  
Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y4y

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD—1847.**  
Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.  
Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the Morning Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.  
J. R. TRIMBLE, Engineer and General Superintendent.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**  
AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and the Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostanaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, and Dalton.	
		250 miles.	280 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead, 8 50	13 50	
	" " barrel.....	2 00	2 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack, Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, CA. Eng. and Gen. Agent.  
Augusta, Sept. 24, 1846.

**THE WESTERN AND ATLANTIC**  
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the East to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1



11y10 PETER COOPER 17 Burling Slip.  
New York

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14 " " " " " "	× 24 " "
" 3,	14 1/2 " " " " " "	× 30 " "
" 4,	12 1/2 " " " " " "	× 20 " "
" 5,	11 1/2 " " " " " "	× 20 " "
" 6,	10 1/2 " " " " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
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William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co, Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
35,000 to 60,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON Mar. 30/1 4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,197 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 36x33 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 1/2 feet two stories high, with a shed part 45 1/2 x 20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x35 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 44 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. 245

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 1/2 ft calibre and 2 to 25 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitted together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLANS.



Manufactured and for sale by

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**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Pipes, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

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**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL & CO.



**Crampton's Locomotives.**

We have copied several brief notices, from the London journals, of Mr. Crampton's improved engines. We now give Mr. C's own statement, in relation to the "Namur," the only one yet completed. This may be considered official, as it was made to the "Society of Arts," on the 31st March; and it should be read by all who are directly interested in the improvement of this wonderful machine.

**Society of Arts.—March 31.**—Wm. Pole, Esq., F.R.S., Vice President, in the chair.—Mr. Crampton gave the following account of the performance of the large wheel narrow gauge engine, "Namur," on the London and Northwestern. The Society will doubtless recollect that I had the honor of receiving a gold medal from them last year for the invention of a new locomotive engine supposed to possess certain advantages; and as this society agreed with me before it was executed, I conceive them entitled to every information on the subject, in order that they may ascertain whether their judgment was correct.—We are all aware how extremely easy it is to give an opinion after trials, but not so before them. During the discussion last year, I professed to obtain the following advantages in a locomotive engine for the narrow gauge, viz: the rocking and vibrating action to be reduced by lowering its centre of gravity, and by confining nearly the whole weight between the supports: the centre of gravity not being influenced by the size of the driving wheel, the advantages resulting from large wheels are consequently secured; four, six or eight wheels may be used, the working arrangements remaining the same; from the superior or low position of the boiler, facilities are given for increasing the heating surface to an extent of at least 2000 feet, and the centre of gravity not injuriously affected thereby, whatever the size of driving wheel; that the arrangement of the machinery is such that the driver can at all times see it at work, and the repairs can be more easily done in consequence of the men not having to get under the engine for that purpose; that the driving wheel being behind the fire-box is in the best place to secure adhesion and steadiness. That the foregoing improvements can be obtained without necessarily altering the proportion found to give the best effect in ordinary engines; consequently every engineer can carry out his own proportion of parts, still keeping the principle of the machine. Having stated what I professed to do last year, I will endeavor to show that so far as I am able to judge, I have every reason to be satisfied with the result, and I do believe that had I not succeeded with the first engine, I should not have been condemned without another trial, as all practical men are aware that a first machine of any kind is rarely perfect. The "Namur" is a six wheeled engine, with the whole of the working parts outside:

Diameter of driving wheel,	Ft. In.
Do. supporting do.	3 9
Distance between centre of extreme wheels,	13
Diameter of cylinder,	16
Length of stroke,	20
No. of tubes,	182
Length of tubes,	11
Diameter of do. outside,	9

Length of fire box,	4 3
Breadth of do.,	3 5
Area of fire grate,	14 6
Surface in fire box,	63
Surface of tubes inside,	937
Total surface,	989

It should be observed that the total surface is less than in many engines on the London and Northwestern. This engine is one of two ordered by Mr. George Rennie for the directors of the Namur and Liege, Belgium, which gentlemen I have to thank for their kindness in allowing it to be tried before leaving the country, and I am happy in being able to state that they have expressed themselves perfectly satisfied. I am also indebted to the directors of the London and Northwestern for the opportunity afforded me of running their trains with the engine. I conceive it due to the manufacturers of the engine, Messrs. Tulk & Ley, of Whitehaven, to state that the workmanship of the engine is equal to anything I ever saw. With these remarks I will endeavor to show to what extent my views have been realized. The "Namur" has been completed about six or seven weeks, and has run a distance of about 2,300 miles, and in no instance has any vital part been disarranged, and only in one instance had we occasion to stop, which was in consequence of a pump joint giving way; and out of these 2300 miles about 1700 were run on the London and Northwestern with express, mail, first class, second class, third class, coke and goods trains—in fact every variety of train taken by other engines on the Northwestern, and only in one instance, before alluded to, did we not arrive before the time, varying from two to eleven minutes at each station, i.e., we gained time to that extent between each station, it being the custom to stop any train arriving at a station before the time stated in the bills. This performance I judge to be conclusive as regards its capabilities of doing all the work in a satisfactory manner on the London and Northwestern at the present time. A train of coke in trucks was taken from Camden Town to Wolverton weighing 80 tons exclusive of engine and tender. During this trip we reached a speed on a level, of 51 miles per hour. The time was taken by Mr. W. Harding. On another occasion, while taking the 12 noon train from London, weighing about 50 tons, exclusive of engine, we attained a speed of 62 miles per hour between Tring and Wolverton; on this occasion we arrived at Wolverton eleven minutes before the time. During these trips I have had a number of engineers and scientific men on the engine, and in no instance has a remark been made that the engine was unsteady; but I may say, in all cases they have stated the engine to be quite steady at a speed of 60 miles per hour. The most severe test an engine can be put to is when it has no train behind it. We tried an experiment of this kind, with Capt. Coddington, the inspector general of railways, and Capt. Simmonds his assistant, upon the engine, and arrived at a speed of 74 miles per hour, on a level, going round a curve between London and Harrow.

The speed was taken by Captain Cod-

dington, who expressed himself, as well as Capt. Simmonds, perfectly satisfied with its steadiness at that rate of speed. In fact, no person has ever been able to discover any difference in its motion, whether going at 20 or 75 miles per hour, so far as regards the internal motion of the engine, although attention has invariably be directed to ascertain it; the only difference being a greater lurch upon any inequality of the road, but any lurch given by this means subsided immediately upon passing the place causing it. This lurching in ordinary engines, with the centre of gravity high, and heavy overhanging weights, causes the engine to vibrate from one side of the rails to the other, in many cases to a frightful extent. I believe therefore that the evidence is sufficient to enable me to state that I have succeeded in producing a locomotive engine with large driving wheels and outside cylinders sustaining perfect steadiness at high speeds, or at 75 miles per hour. The second proposition, the centre of gravity, etc., I think is evidently correct, which may be easily seen by referring to the drawing, accompanied with the fact of an engine being at work upon the plan. The third proposition is also, I think, evident to all persons acquainted in the least with the subject. The fourth proposition can only be proved by the engine being made and at work, so that it may speak for itself. There is one thing certain, that an engine containing about 1000 feet of surface is nearly completed for the Northwestern, with 8 feet driving wheels, 18 in. cylinder, and 20 in. stroke, and 23 feet of fire box; the appearance of which is precisely the same as the "Namur." With respect to the power being increased to 2000 ft., that that will be a difficult matter to show in a paper of this kind; but I have not the least doubt of producing an engine on the narrow gauge with double that surface if required; in fact, I believe that an engine may be made for the narrow gauge of any conceivable dimensions; at the same time I do not believe that engines of such magnitude can be used practically on any gauge. The fifth proposition I conceive to be of the greatest importance; it will be seen that the whole of the eccentrics, valve, gear, and every other moving part can be reached from the foot plates, enabling the driver to oil the parts when required, as well as see whether all is going on correctly, and prevent a total derangement which might occur, when too late, with the machinery under the boiler; also when repairs are required, the difficulty of getting at the parts in ordinary engines necessarily keep the engine in the shop a longer time than would be required for the same repairs in my engine, where the men can stand to do all that is required. There is no part requiring attention inside the boiler. Sixth, the regulator ordinarily put inside the boiler, or in the smoke box, is so placed that a man can stand on the ground and do anything that may be required. The slide valve is also in the same position. I attach great importance to these points, for the following reasons:—that an engine requiring a certain amount of repair can be done in less time with the ma-

chinery in a convenient position, as in my engine, consequently a railway company may do their work with fewer engines. A more striking proof of the superiority of this is shown by the fact that superintendents will not crawl under a dirty engine to see whether the men have done their work properly. We cannot but expect that many things are improperly finished; but where a superintendent can walk round an engine and see all the machinery without trouble, the men cannot, if so disposed, neglect their work without being discovered. There is another very important point connected with this arrangement of the machinery being outside, and which I have seen exemplified, viz: that of cleaning the engine, which has to be done daily. The cleaners, instead of having to stoop and put themselves in all kinds of shapes as is required to clean ordinary engines, can stand to their work in mine. I have made some inquiries upon this point, and find that four men and two boys will clean my engine better in the same time than six men and two boys will clean the ordinary engines. These advantages may appear trifling at first sight, but when we take into consideration the vast outlay and railways for locomotive plant, anything tending to diminish it, as well as labor, may fairly be looked upon as a matter worthy of attention. Seventh, that the driving wheel being behind the fire box is the best place to secure adhesion and steadiness. There are many engineers who prefer the driving wheels in the centre, but I must confess it never appeared preferable to me. I attribute a great portion of the steadiness of the Namur to the fact of the driving wheel being behind the fire box, and for these reasons: an engine when running fast requires a certain amount of weight on the leading wheels to keep it to the rails, and the driving wheels still more weight for adhesion to prevent slipping;—these wheels, the leading and driving, being at the extremities of the machine, can have the maximum weight put on them with perfect safety, by taking the whole weight off the centre wheels; for instance, the Namur weighs about 22 tons when running; if we support the engine on the extreme wheels the drivers will have 13 tons and the leading wheels 9 tons, and by putting 4 tons on the centre wheels the drivers will have about 10½ tons and the leading wheels 7½ on them, which weight is required for the proper working of the engine. It will be I think evident that, in the event of the road being in bad order, neither the leading nor driving wheels will be acted upon injuriously by the centre wheels being a fulcrum, as the springs having only 4 tons on them, will easily yield; but we will suppose the driving wheels in the centre with 10½ tons on them, the leading 7½, and the trailing 4 tons, the result of inequalities before mentioned will have the effect of causing the engine to rock on the centre wheels, the springs of which being too rigid to yield. To make it more clear, suppose the trailing wheels without any weight on them, the result would be an overhanging of the boiler to an extent quite inadmissible; and any weight on the trailing short of

that on the centre wheels only diminishes the evil; but in placing the greatest weight on the trailing or hinder wheels, as in my engine, no such tendency exists. I come therefore to the conclusion, that an engine having the weight distributed as in the Namur, is correct in principle, which is fully borne out by the working of the engine. With regard to any proportion of parts being adapted to my engine, I can only observe that I shall feel great pleasure in carrying out any engineer's proportions on engines that they may require on this plan. To enter minutely into all our fancies in this respect, I fear would be far from interesting to the society. I beg further to observe that I shall be happy to furnish the society (if they desire it) with the detailed experiments both of the Namur and the larger engine now nearly finished for the London and Northwestern, which I hope to have completed before the end of this session. The care required in making experiments with respect to coke and water, and the various circumstances to be taken into consideration during such experiments, demand that statements respecting them should be very carefully made, particularly in a new engine. I have, in consequence, come to the conclusion of not making them until my whole attention can be devoted to the subject, and everything is in a proper state for so doing.

#### Iron Manufacture.

We commence, in this number, the publication of a pamphlet—"ON WALL'S IMPROVEMENTS IN THE MANUFACTURE OF METALS, by the Application of Voltaic Electricity." This pamphlet was published in London last year, and a copy of it sent to a gentleman of this city, through whose politeness we are permitted to re-publish it in the Journal for the benefit of our readers. We cannot introduce it in any language, it appears to us, so appropriate as that of the author in the form of a "preface," which is as follows, viz:

The novel and interesting process which forms the subject of the following pages, has been sometime before the public. Three years ago its claims were tested, and the experiments which then took place triumphantly established its efficiency, and proved it to be no idle pretension. Its non-adoption, therefore, may perhaps have been matter of surprise, for there has been no failure in any succeeding trial, nor any proof weakened. Prejudice has, it will be seen, done much, and that slow caution, so hostile to anything wearing the appearance of innovation, has operated prejudicially for a time, but its claims were too genuine to allow for a moment a doubt of its efficiency and importance. Matters however merely personal are seldom of consequence to interest the public, and transactions now bygone even in their consequences, it were useless as inopportune to discuss. The crisis is passed; the judgment formed on the merits of the discovery, remains unshaken, and applications for the use of it have again poured in upon the patentee. At such a juncture the appearance of the present pamphlet will be deemed not ill-timed. It will tend to strengthen this restored confidence, and hasten to society the possession of advantages which we hesitate not to maintain

are equal to any ever conferred on industry and art.

#### ELECTRO METALLURGY.

The application of electricity, as patented by Mr. Wall, in the manufacture of iron and other metals, is unquestionably a most interesting process. It forms an epoch in the annals of science, and is pregnant with results of the highest import. Its novelty, perhaps, may seem to require some introductory remarks, but the numerous trials to which it has been subjected during a period of four years, the details of which will be given hereafter, will prove more satisfactory than the most elaborate dissertations. However, a few remarks on the progress and present state of the iron trade will be necessary, in order to form a correct idea of the advantages to be derived from Mr. Wall's invention.

Sixty years ago the English bar iron was made by means of charcoal, to which, occasionally, was added coke in small quantities. The metal thus produced was hard, deficient in strength, and brittle, and required so much time to convert it from the cast state to malleable or pure iron, that the largest works turned out not more than twenty tons per week. A great change, however, was at hand.

About the year 1700, Mr. Cort invented the method called *puddling*: this operation consists in exposing the iron to the flame of pit-coal on the hearth of a reverberatory furnace, while it is diligently stirred about with rakes or paddles, a process at first much opposed both by masters and men, but now universally adopted. Mr. Cort further improved his process by previously melting the cast iron in contact with coke blown upon by bellows, an operation now known by the term *refining*. Cast iron thus operated upon, become, after being puddled, a strong cohesive metal, to which he gave density and nerve, by beating it under a huge hammer, worked by steam or other power. It was then reheated and rolled, and thus came out malleable iron, and probably superior to any now produced in this country. The improvements introduced by Mr. Cort soon attracted the attention of government; this metal was recommended for the use of the navy, and after severe trials, was found equal to the best Swedish iron.

But these advantages had not been long secured before a great falling off took place in the quality of the materials used; to such an extent as not only to neutralize the improvements of Mr. Cort, but to render the iron offered for use at the present day, inferior to the metal produced before his time.

The ores then used for making cast and bar iron, were principally brown and red *hematites*, with a small proportion of the *earthy* iron ores; minerals far purer than the *clay ironstones* of the coal formation, almost exclusively employed in the smelting furnaces at the present day. When we consider further, that the *crude nature* of the materials is aggravated by smelting them with raw coal, urged on by a hot blast, we cannot be surprised at the inferiority of the article now brought into the market.



In consequence of the increased demand for iron, the competing effort for increase in quantity, has almost excluded all regard for its quality. Hence, when iron is required for anchors, cables, etc., recourse is had to Sweden or Russia, from which countries upwards of 16,000 tons is annually imported.

The rapid rate at which the production of iron has increased in Great Britain, may be seen from the following statistical retrospect:

In 1740, our cast iron was made with charcoal fuel, and amounted to 17,356 tons.

In 1788, the product was 61,900 tons, of which 48,800 were made with coke.

In 1796, about 125,000 tons were made, and almost wholly with coke.

In 1806, the product was 250,000 tons.

In 1820, the amount was 400,000 tons.

In 1830, the product had become 677,147 tons.

In 1840, the product is stated at 1,396,400 tons.

The product may be estimated at the present time, at a million and a half tons, from which enormous quantity it would be difficult to select a specimen either of cast or bar iron, equal in quality to that made 55 years back.

But it is not by statistical tables, nor mere theoretical comparisons that we are to judge of the system under consideration. It is not a matter confined to the hall of the lecturer, or the laboratory of the experimentalist. It should be reviewed in its consequences, in connection with those fearful accidents so frequently occurring in different parts of the world; and which are to be attributed solely to the impure quality of the metal used in the machinery destroyed. It may be said—"every evil cures itself," if allowed time;—but who, having the least pretension to philanthropy, would hesitate, or countenance any delay, where the lives of thousands are at stake?

It is vain, however, to expect that iron-masters, intent only on out-stripping their rivals in quantity and cheapness of production will incur the trouble and cost of any considerable and expensive alteration in their establishments.

At such a juncture, when the demand for iron is so rapidly on the increase, the appearance of Mr. Wall's invention is most opportune, as it offers a simple and economical process for separating the crudities which contaminate our iron, and bringing it nearer to the pure, tenacious and ductile condition of the best marks of Swedish and Russian metal.

It is hardly necessary, in the present state of chemical knowledge, to allude to the discoveries of our illustrious countryman, Davy, but the analogy between his writings and Mr. Wall's process is obvious.\* A slight perusal of that philosopher's treatise on electrical phenomena, in the production of the metals potassium and sodium, from bodies previously regarded as elementary, by the

\* See Sir H. Davy's first Bakerian Lecture, "On some Chemical Agencies of Electricity," read to the Royal Society in 1806; for which, during the hottest period of French hostility, the great Napoleon prize was awarded its author, by the Institute of France.

action of voltaic electricity, would sufficiently illustrate Mr. Wall's principles.\*

It may, indeed, surprise anyone who is not aware of the unfortunate barrier which ignorance and prejudice have set up, and continue with obstinate blindness to maintain, between scientific research and the arts of life, that Davy's splendid discovery, above noticed, had not long ere now been applied to that chaos of conflicting elements which are associated on the hearths of our iron furnaces.—Here are found, huddled together in intimate combination, a multitude of substances, such as silicon, alumina, titanium, manganese, sulphur, arsenic, phosphorus, all more or less prejudicial to iron.† Now, if the most simple action by which the temperature of bodies is raised, evolves electricity, and the mere contact of two dissimilar metals induces electrical action, what must be the effect on a molten mass of the above discordant materials, with their electrical conditions, raised to the highest degree of excitement by the intense heat of a blast furnace?

A reference also might be made to the works of Prof. Faraday, a name great in the annals of science, and whose "Experimental Researches" are full of corroborative proofs of the principles under consideration. Other authorities might be cited, but the above great names are amply sufficient. We will, therefore, proceed to note down the experiments made by Mr. Wall, which will be more satisfactory than any proofs drawn from the analogous writings of others. For notwithstanding that its phenomena were observed by remote antiquity, although it is as widely diffused, as energetic in its character, and as important in the economy of the material universe as heat itself. Electricity is even yet imperfectly known; its properties are not yet accurately defined; it is a region, where, though many discoveries have been made, strange adventures will yet be met with, which may overturn, or at least materially change all received views. Consequently, where the whole structure of our knowledge is raised by active observation and experience, one fact is of more worth than a thousand arguments—one experiment stronger than a legion of theories.

"To arrive," says Mr. Wall, "at just conclusions in science, inquiry and proof are absolute requisites; for if the basis be not truth, disappointment is sure to follow. I have, therefore, felt more anxiety, and bestowed more exertion, in convincing myself of the practical results of my discovery, and its benefits to manufacturers, in the first instance, than I have troubled myself in convincing them or others since.

"The wonderful effects of electricity in

\* See second Bakerian Lecture, delivered on the 19th of November, 1807, entitled, "On some New Phenomena of Chemical Changes produced by electricity; particularly the decomposition of the fixed alkalies, and the exhibition of the new substances which constitute their bases: and on the general nature of alkaline bodies."

† Of these deteriorating compounds, silicon is that which is most largely introduced by the agency of the hot blast; no less than ten per cent. having been obtained from cast iron produced at a great Welsh establishment.

Sir H. Davy's experiments, and enlarged and improved upon since his time, convinced me of the practicability of my plan, and the results to be expected from a steady pursuit in its development. For this purpose I gave up all other matters on hand, and commenced my experiments about 5 years since, resolved to allow nothing to interfere so as to frustrate the object in view. It would, however, be tedious and uninteresting to give a minute description of the several experiments I made during a period of three years and a half, up to the autumn of 1843. From that date, my experiments, hitherto private and on a small scale, became public, and took place in the presence of men of honor and veracity, whose testimonies I have procured. The parties with whom my first engagements were made were well qualified for the purpose in hand; and their skepticism, if I may so term it, obliged me to show and explain everything, (often repeatedly,) which had even the remotest connection with the affair.

"On the occasion referred to, the iron was seen in London, first in the Welsh pig; then broken, melted, electrified, and recast into pigs of 150 pounds each. Then, without being lost sight of, it was conveyed, per rail, to Birmingham, where it was puddled, hammered, and rolled into bars and plates, in the presence of the above mentioned parties. It was in this state brought back to London, and the strength of the metal was tried at the great anchor forge of Messrs Brown and Lenox, Mill Wall. It was twisted, pierced, punched, hot and cold, as well as being made into chain, and subjected to the testing machine, where the power induced by leverage will snap the strongest chain cable in the British navy. Mr. Lenox, in person, superintended the testing, and furnished the following report:

*Iron Cable Manufactory, Mill Wall, }  
20th October, 1843. }*

3½ inch links, made of Mr. Wall's iron, broke with machine, having borne several strains as under:

	3 inch full, measuring 7½ inch long, at
10 tons elongated,	to 8½ inches.
12 "	8½ reduced bare ⅓
16 "	8½
17 "	8½
18 "	9 reduced full ⅓
21 "	9½

22 14 cwt. broke showing a good chain fibre. Best cable iron should bear test 19 tons in chain.

One bolt, 2 ft. long by ¾ inch full at

	Inches.
6 tons elongated,	to 24½ reduced bare ⅓
9 "	24½
10 "	25½
11 "	26½ reduced full ⅓

11½ broke, showing a similar fracture to the above. Reduced, at break, to ⅓ inch.

R. G. P. LENOX.

"The gentlemen who manufactured the specimens in Birmingham, were entire strangers, both personally, and to the objects we had in view. Indeed they were told that the metal to be operated upon was a speci-

men of foreign ore, reduced into metal, which we were desirous of having tested, without favor, as by their report they were to be guided in our speculations; so that under such circumstances, their conduct and report admit of no suspicion of unfair dealing."

After the metal was puddled, and rolled into bar, the following queries were sent by Mr. Wall to the parties in Birmingham:

"Mr. Wall presents his compliments to Mr. Sims, and is desirous to request answers to the following questions:

"First—Please state what process the metal sent you on the 15th inst., has undergone, and what may be its intrinsic value in comparison with metal from Staffordshire ore, undergoing a similar process?

"Second—State what percentage this specimen possesses over ordinary pig, and the purposes to which it can be applied?

"Third—Does Mr. Sims consider metal produced from such pigs, as that operated upon, a saving of any of the intermediate processes, and what number?

"Fourth—What might be the amount of saving to an establishment manufacturing such pig, and with all the knowledge and facilities of the Welch or Staffordshire manufacturing establishments?"

Birmingham, Oct. 14, 1843.

Answer to question the—

"First. The metal sent here on the 12th inst., has undergone processes 1 and 2, and the intrinsic value is about £8 per ton, present market price; and it is 20 per cent. better than either Welch or Staffordshire iron, undergoing a similar process.

"Second. This question is answered in the first, except that this metal may be applied to any purpose where best iron is required.

"Third. I consider metal by No. 2 process from such pig, equal to that manufactured by Nos. 3 and 4 processes of Staffordshire bar iron of the present day.

"Fourth. A company working from such metal as that sent here on the 12th instant, with the knowledge and facilities of the Staffordshire establishments, would effect an average saving of 30 per cent.

"THOMAS SIMS."

"I, the undersigned, do hereby certify, and agree with Mr. Sims in his report on this iron,

JOHN PENN,

Engineer and Foreman at Mr. Sims' Works for twelve years."

After such a trial, in which every point was so closely watched and so determinately contested, and where the results were so satisfactory, scepticism was at an end. Still, when these results were contemplated in their bearings on the various processes occurring in the manufacture of metals, a feeling of astonishment seemed to predominate. In order, therefore, to put an end to all doubts, and make conviction doubly sure, it was thought advisable that Mr. Wall should proceed to some of the large iron establishments in the north of England. Milton, near Sheffield, was the place chosen for this purpose.

Accordingly, on the 6th of May, 1844, Mr. Wall went hither, accompanied by an assistant, and by the kind permission of the proprietor, was immediately introduced to the iron works. The manager, Mr. Hawthorn, as honest and upright a man as ever was employed in the trade, afforded every assistance in his power. His principal was "a clear stage and no favor," and he determined by the most accurate experiments, to test the real value of the discovery.

Milton Iron Works, May 8, 1844.

"The first experiment consisted in passing a current of electricity through about thirty hundred weight of No. 2 pig iron, when melted and received into a crane ladle. This ladle was lined with fire clay, and fixed in a bed within a few feet of the tap hole, so that it might receive the fused metal in its hottest state. The battery, which was a Smee's of thirty-six pairs, five and half inches by three, and arranged on the quantity principle, was applied by attaching the wire of the positive pole to a rod inserted in the top, and a wire of the negative pole to a similar rod at the lower extremity of the ladle. The action in the battery cells was regular but not strong. The menstruum (acid and water) was then changed from 1.5 to 1.7 specific gravity on Knight's acidimetre. The action being thus increased, a strong and highly offensive gas was emitted from the cells. Twenty-five minutes from the first application of the battery, two-thirds of the metal had set, so that the ladle was obliged to be emptied, to prevent the whole mass becoming solid. The portion which still remained in a fluid state, was run into beds of sand preparatory to its being puddled. The residue had so firmly adhered to the two poles, as not to be separated by any ordinary means.

"May 9th. The metal which had yesterday undergone the electrifying process, was this day puddled in order to be compared with some metal in the ordinary or non-electrified state. The following is a table of the results:

Electrified Iron.		
Charge.		Loss.
No. 1	3½ cwt.	16 lb.
2	3¼	8
3	4	20
Non-electrified.		
Charge.		Loss.
1	3½	24
2	3¼	15
3	4	24

The only difference particularly observable between the two metals was, that the electrified appeared torn and fibrous at the fracture, indicating force of cohesion. Its carbon was of a darker hue, and the molecules presented themselves in the centre of the pig in large bright clusters, denoting the absence of sulphur, which usually covers the molecules in non-electrified metal with a dull lead like film. It puddled much the same as the ordinary metal, only thinner; but as a change took place, or when it began, as the workmen term it, to come to nature, it balled rapidly and soft. It was also noticed by the puddler, that it

stood the fire better than the ordinary metal, a remark soon after confirmed by what occurred in the next trial.

"May 9, P.M. The metal electrified this morning was weighed out in portions of twenty-one hundred each, and was puddled this afternoon and during the night. The results were an average loss of 1 cwt. 1 qr. 2 lb. per ton, an excess, when compared with the preceding experiment, but solely attributable to the gross and wilful negligence of the puddlers. This man, from a blind spirit of opposition, which he did not attempt to conceal, made use of every means within his reach to mar the success of the operation. Under pretence of some deficiency in his hammer, he kept some of the charges committed to his care one hour and twenty minutes after the metal had balled. But he was disappointed; as remarked before, it stood the fire well, for after being subjected to so severe a test, it actually came out in a better condition than the rest, although a loss of one-fifth was the consequence.

"Several other trials succeeded, all equally satisfactory. An account of all that had taken place was sent to Dr. Ure, in compliance with his request, by Mr. Hawthorne, the manager. In it he gives details of the whole proceedings; notes down the various phenomena which were observed during the experiments, and concludes by stating, that in his opinion, the process would effect a saving, in the manufacture of iron, of 35 per cent. The proprietor of the works, Mr. Graham, was so satisfied of the value and the efficiency of the invention, that he at once wrote to the party connected with Mr. Wall in the patent, to obtain a license for the use of it in his establishment. Specimens of the metal were taken to London, and there tested in every way calculated to convince the most prejudiced. Analyses were made by Dr. Ure, and other experienced chemists; and in their report, they place the metal, which is termed No. 2, if electrified, on a parallel with the best best. Besides, even in the merchant bar, formed of the ordinary metal, they found silicon, manganese, and arsenic; but scarcely a trace could be detected in the electrified metal, although manufactured from similar ores, and in every other respect, by the same process. It was observed, also, to roll better than the ordinary metal; to rid itself of its exquisitely fine cinder more easily; passing better through the rollers, and under the hammer; nor was there so much, by three per cent., of the peroxide of iron from the cinders left after balling."

To this last circumstance we shall again advert, when treating of the effect of electricity on the peroxide of iron.

(To be Continued.)

Branch Railroad.—It is stated that the Philadelphia, Wilmington and Baltimore railroad company, have it in contemplation to run a branch of their road from Wilmington to Newcastle, by which the chain of railroad communication will be complete from Pottsville to Newcastle, and the shipment of coal may be continued during the winter months.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, May 8, 1847.

Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

Bridges for Railroads.

The following communication is from one who is every way competent to judge of the merits of Mr. Whipple's works—both bridges and books. We shall examine and refer to the subject again.

For the American Railroad Journal.

The object of this communication is to invite the attention of the profession, and others, to a treatise upon the construction of bridges, lately published, from the pen of S. Whipple, Esq., C. E., of Utica, New York.

Mr. Whipple has given much time and attention to this important subject; and as he is a gentleman of high attainments, both scientific and practical, and warmly devoted to mechanical pursuits, his treatise is prepared in a very able manner, and will, I have no doubt, be productive of much good.

There is no branch of engineering so little understood by men of the profession, as that of the proper construction of bridges. This is evident from the diversity of plans adopted upon public works, which are as various almost as the works themselves—a state of things somewhat remarkable, as there cannot well be more than one best plan for bridges of the same dimensions and character, and which can only be accounted for by a want of that complete knowledge of the subject requisite for forming a correct judgment. This want, Mr. Whipple aims to supply, and he begins at the right place, viz: at the foundation, by stating clearly the principles which should govern, and thence proceeding to the application of those principles in the arrangement of plans suited to various circumstances.

To those at all conversant with the subject of bridges, it will be obvious that it is naturally divided into two parts—one portion in relation to suspension, and the other to truss bridges. The treatise of Mr. Whipple is confined almost exclusively to the latter. In his investigations, he supposes the truss or supporting frames to be composed either of wood, or of wood and iron combined, or of iron alone.

With respect to iron bridges his remarks are peculiarly valuable. His experiments have been made upon a sufficiently large scale, and the bridges he has built have stood a sufficient length of time to test their stability, and the correctness of the principles upon which they were constructed. It is now several years since the undersigned was invited by

\* Mr. Whipple is the inventor of the improved weigh lock, in use upon the enlarged Erie canal.—He is also the inventor of other valuable mechanical improvements.

him to examine his models and plans for iron bridges, and a close observation since of bridges constructed in accordance with those plans, and a knowledge of the tests to which they have been subjected, has produced the conviction that bridges of iron for railways will, in the majority of cases, be found the most economical and safe, and the best suited in all respects to the purposes intended.

Those who have not given much attention to this subject, will be surprised at the small difference in cost between a truss bridge constructed principally of timber, and one formed wholly of iron. The instances are not few where durable iron bridges could have been constructed at a first cost not greatly exceeding that of the perishable wooden ones which have been adopted. As it respects the ultimate cost, the difference in the instances referred to, would have been greatly in favor of the iron bridge. We do not, however, desire so much to find fault with what is past, as to see a better knowledge of the subject prevailing with those who have the charge of public works, that fewer mistakes may be made hereafter.

The treatise of Mr. Whipple is drawn up in that plain and concise manner which indicates a clear and accurate mind, imbued with a very thorough knowledge of the subject. It is a work highly creditable to the profession, and will do honor to it at home and abroad. His illustrations and application of mechanical principles are brought as much as possible within the comprehension of all. He promises, if his present treatise meets with sufficient encouragement, to follow it by another of a far more strictly practical character, giving full details of plans suited to different circumstances and localities. We trust he will be so far encouraged in his present effort, as to induce him to persevere until he has accomplished all that he proposes upon the subject on which he is engaged.

E. F. J.

"Great Western" Railroad.

We learn, from authority, that eight large corps of engineers have just been organized upon this route, and it is expected that the entire line will be ready for contract, as early as August next. The surveys for the projected railway from Rochester, to intersect the New York and Erie and the Blossburg railroads at Corning, have been completed.

The consummation of the "Great Western," and the road from Niagara Falls to Rochester, will complete the last links in the great chain from Lake Michigan to the pier heads of Boston Harbor.

Thayer's Truss Bridge.

This invention appears to be gaining high favor with the public. We are informed that another is in progress of construction, to cross the Delaware at Damascus, Pa., a few miles above the one heretofore noticed, and which from its extra length and strength is among the wonders of the age. The Damascus bridge is to consist of two spans of 250 feet each. The river is rapid at this place, and no bridge hitherto constructed has been able to withstand the force of the current and floating ice.

Legal Decision.

PHILIPS VS. NEW JERSEY RAILROAD COMPANY.

Philips was passing in a wagon, with a colored lad, along the road near Newark, parallel with and near the railway. He met the train, and at the moment of passing, the engineer let off steam, which frightened the horse, caused him to rear, and he fell into a ditch, dragging in the wagon and those in it, by means whereof the horse was drowned, and Philips and the boy were chilled and injured. He sued

to recover damages for the injury. The suit was fully tried before Judge Edmunds, in the New York Circuit Court, and a verdict rendered for plaintiff of \$225.

Boats on the New York Canals.

The Canal Department of the State of New York has a regulation requiring the enumeration of all the boats upon the Canals, at the closing of the season. The list furnished in November last (1846) gives the following, which may be useful for reference. We copy the account from a late number of the Rochester Democrat:

Kind of Boat.	No.	Tonnage, Average.	Value.
Packets.....	49	32	\$49,000
Line boats.....	477	65	477,000
Lake boats.....	588	65	588,000
Bull head boats.....	187	67	187,000
Scow boats not decked.....	683	54	730,000
" do decked.....	741	62	
	2725	62	2,013,000

The inventory taken in 1843 was the first attempt of the kind, which gave a total of 2126. A comparison of that year with the last shows the increase and decrease of each description of boats:

Kind of Boat.	1843.	1846.	Inc.	Dec.
Packets.....	40	49	9	...
Line boats.....	389	477	88	...
Lake boats.....	379	588	209	...
Bull head boats.....	118	187	187	...
Scow boats decked.....	327	741	414	...
" do not decked.....	873	683	...	190
	2,126	2,725	789	180

This exhibits an increase of 599 boats; or about 23 per cent.; while the number of tons passing thro' the canal in the same time has increased about 50 per cent., or from 1,513,439 in 1843, to 2,268,662 in 1846. The less proportionate number of boats to the large increase of business, is to be found in the continual increase of their size, as the following shows:

Kind of Boat.	1843.	1846.	Increase.
Packets.....	1,370	1,353	183
Line boats.....	21,082	30,797	9,715
Lake boats.....	23,665	38,017	14,152
Bull head boats.....	7,350	12,514	5,164
Scow boats decked.....	18,425	39,844	21,419
" do not decked.....	75,361	45,562	301
	117,453	168,287	50,834

The progressive increase in the tonnage of boats is more satisfactorily shown by the registered tonnage within the last three years:

New Boats.					
Tonnage.	Boats.	1844.	1845.	1846.	Boats.
180	...	...	...	...	1
120	...	...	...	...	2
110	...	...	...	...	3
100	...	...	1	1	3
90	3	1	4	6	...
85	1	...	1	7	12
80	3	9	13	100	103
75	14	33	60	186	214
70	175	124	107	123	479
65	295	94	54	96	530
60	526	71	33	9	690
55	256	15	4	1	212
50	467	13	5	3	255
45	153	1	2	1	87
40	147	...	...	3	69
35	33	1	1	...	14
30	34	11	1	2	27
25	10	3	...	4	4
20	8	...	3	3	11
15	3	1	...	...	6
10	4	...	1	2	3
5	...	...	4	...	...
2	...	...	3	...	...
		3,126	378	297	477
					2,725

It appears from the foregoing statement that the

ascertained number of boats 1st of January, 1844, was.....	2,126
Built and registered in 1844.....	378
" " 1845.....	297
" " 1846.....	477
	1,152

Making in all, without allowing for 'deaths'. 3,278  
But the actual ascertained number of boats on the 1st of January, 1846, was..... 2,725

Showing the diminution of boats to be..... 553

As the 1,152 new boats built and registered in the last three years, are of course still in existence, it necessarily follows that the diminution of 553, as above stated, since 1843, is from the oldest boats of the least tonnage. It is perhaps fair to assume that the 553 boats which have gone out of use since 1844 were of an average tonnage of 47 tons. The average tonnage of the new boats is 69 tons. The absolute addition to the tonnage of the canals in the last three years, consequent upon such increase in the number of large boats, and the diminution in the number of small boats may be stated as follows:

2,126 boats, being the total No. Jan. 1 '44,	115,185
Deduct—553 old boats gone out of use,	25,991

Leaving 1,573 old boats in use Jan. 1, '47,	89,194
Add, 1,152 new boats since Jan. 1, '44,	78,336

Making 2,725 boats, and a total tonnage 1st January, 1847, 167,530

This differs only 758 tons from the tonnage of all boats as ascertained by actual view and estimate as before stated, and is equal to an average annual addition in the last three years to the tonnage of the canals of 17,449 tons, 13 per cent. per annum, or 39 per cent. for the whole time. The average annual absolute addition of boats in the same time, after deducting those which have gone out of existence, is 200 per annum, equal to 9 per cent.

#### Ogdensburg and Boston Railroad.

Our citizens, says the *Rochester Democrat*, are more deeply interested in this road than they imagine.—The Bostonians, ever alive to their interests, are making strong efforts to secure a portion of the western trade. To effect this, they have left nothing undone. The magnificent project of uniting Boston with the St. Lawrence, by a railroad to Ogdensburg is likely to be carried immediately into effect. Experience has shown the citizens and capitalists of that place, that a railroad connecting with a great western thoroughfare, is to them a mint of money. Even the imperfect facilities of the Western railroad have been productive of vast benefits to the city.—The enterprise and perseverance displayed in the Ogdensburg project is a sure guarantee that this work will be completed with all convenient speed. They first opened a private subscription, and employed surveyors, who traversed the line and made reports, which showed that the thing could be done; they then set to work and obtained charters from N. York and Vermont—opened books—obtained subscriptions for two roads to Burlington—made arrangements to connect with the Canada thoroughfares, which will secure them a rich trade—and commenced the construction of the two roads, which are to terminate at Burlington—one of which runs by way of Lowell, Concord and Montpelier, and the other by Fitchburg, Keene and Rutland.

"From Burlington to Ogdensburg is 155 miles. The height to be overcome in passing from one place to the other is 1009 feet above Lake Champlain, and 859 above the point where the road terminates on the St. Lawrence. The grade from Ogdensburg to the summit is 26 feet to the mile, or 1 to 200, there being in the distance 1,195 feet ascending

and 296 feet descending. The summit is 2½ miles from the Canada line, and from this point to Lake Champlain there is no ascending grade, and the maximum of descent is 39 feet to the mile. This will favor the passage of heavily laden trains from the west. None of the curves exceed 5000 ft. The estimated cost of the whole road is \$2,229,379, or \$19,000 to the miles. The road will cross Lake Champlain at Rouse's Point, by a bridge 3,880 feet long, over a sheet of water 20 feet in depth. At the point of crossing it will be met by the road from Montreal. Boston capitalists have made large investments in real estate at Ogdensburg. One company has taken about a mile on the river for wharfing.

"There are several reasons why this road is important to Rochester. When completed, flour can be sent from our landing for 12½ cents per barrel to Ogdensburg, and thence to Boston for 37½ cents, making the cost from this city to Boston at about 50 cents. Perhaps 75 cents ought to be considered about the aggregate charges on a barrel of flour from the time it leaves the mills in Rochester till it is on shipboard in Boston. It is plain to see that this route will in the nature of things compete successfully with the Erie canal, which, in its present capacity, can carry only a portion of the freight seeking a market in the eastern seaports. Boston now exports 500,000 barrels of flour a year, and as soon as an avenue to the west is opened that quantity will be doubled.

"The construction of this road must necessarily increase our lake trade, and greatly augment the amount of shipping at this port."

#### Southwestern Railroad Convention.

The Macon Telegraph—speaking of the Convention which was proposed to be held at Americus on the 28th of April—says it has been postponed to the 18th of May. The object of deferring the meeting to that period, is to adapt the time, as far as practicable, to the convenience of the people of the Southwestern circuit—the courts of which circuit being in session, a number of influential citizens would not be able to give their attendance, on the day first named.

We are happy to learn that the people of the counties through which the contemplated road is to pass, are wide awake to their interests, and are arousing themselves in good earnest to the work.—They are the most interested and the most to be benefitted by the undertaking, and should not merely lend a helping hand, but take the lead, and by their example and zeal induce others to follow. The most cursory inspection of the map of southwestern Georgia, will satisfy any one of the expediency, nay, of the necessity of a communication that shall be certain, speedy and cheap, between that section of the State and the Atlantic markets. This is a progressive age and country. There is an emulous spirit for making money prevailing everywhere;—competition meets us on every side; and to be stationary in any department of business, is in fact to be retrograding. The cotton region of Georgia, as it has been appropriately called, can produce a better article of cotton, and larger and more certain crops, than any other part of the State; but what will their crops avail, if there is no outlet for them? The superiority in quality, and the excess in quantity, are more than counterbalanced by the advantages which superior enterprise and energy have given other less favored parts of the State.

It would be a profitable and interesting calculation, which may be made at some future time, to estimate the extra charges incurred upon shipments

of cotton down the Flint and Chattahoochee rivers, and thence by a circuitous, tardy and dangerous navigation around the Florida keys; or to estimate by approximation, the damage and loss sustained by the detention, sometimes for months, of cotton on those rivers, in consequence of their unnavigableness. The item of charges, which in the return of sales, is always an important consideration, our planting friends, should they ship their cotton, instead of selling it to the merchant, would be disposed to look upon as an extravagant extortion; and yet they alone pay it; for all incidental charges attached to the transportation of their cotton to market, such as freight, postage, insurance and interest, affects the first cost of the article.

As we have before urged, says the *Telegraph*—"there is every reason for, and none against, a vigorous and prompt support of this undertaking by the planters of southwestern Georgia. They will do it from choice. They will be forced to it by stern necessity, for if they expect remunerating profits which increasing competition is annually diminishing, they must open a direct communication with the Atlantic. Let the planters of Sumpter, Lee, Baker, Randolph and Stewart, set down and count the cost on a bale of cotton before it arrives at the port for shipment, incurred by high freights, extravagant rates of insurance, detention, loss of interest, etc., and contrast it with the expenses paid on inferior cotton by the planter of middle Georgia, who gets it to market in three or four days, and the difference in charges is what the planter of the cotton region of Georgia loses on his cotton."

#### Greenville and Charlotte Railroad.

The *Charleston Mercury*, in an article upon the subject of the probable completion of their projected roads, says a Georgia exchange, "speaks strongly in favor of adopting means for developing the internal resources of its own State; instead of competing with its neighbors, for the command of their internal trade; a rivalry, which though profitable at first, from incidental advantages, must eventually result in the triumphs of their own home interests, if the true Georgia feeling be not totally extinct.

"The annexed paragraph gives strong and conclusive reasons for the propriety of the former course in Carolina. It has always struck us as remarkable, continues the paper from which we quote, that the abundant produce of the upper districts of that State, should have been locked up so long from all communication with her seaport, by the want of any mode of transportation, while such a truly fraternal zeal has been manifested in directing the superfluities of upper Georgia from our own city—the natural outlet—to the city of Charleston.

"While in our verdant youth, such fostering care was duly appreciated; but the child has now grown old enough to take its own property into its own hands, and if we mistake not the signs of the times, will soon be able to convince her neighbor of the necessity of looking nearer home for the storage of her granaries, than the Cherokee counties, whose trade should be ours, from all motives of mutual interest and State pride; and must be—if our merchants only exert due energy and skill in developing the facilities which their position and advantages have placed in their hands. Why will not Georgia awake from her slumbers—rouse herself from the apathy into which she has been plunged, and contribute her resources to the building up of her own seaport, in preference to that of a neighboring State, who sneers at her short-sightedness while waxing fat upon her gifts? Both policy and State pride contribute to urge the adoption of a course so natu-



ral and so profitable to all sections alike. Our own sectional jealousies should not be allowed to impede our progress. They would be regarded as simply ridiculous, were not their efforts so fatal to our common prosperity. The Mercury says:

"The Cherokee county in Georgia, which we are now approaching, and which we have been so desirous of reaching, is from 367 to 400 miles from Charleston. The freight from the different stations within that limit varies on grain from 25 to 30 cts. per bushel, and on flour from \$1 30 to \$1 37½ per bbl. These productions from that quarter are likewise exposed to the detention and loss of breaking bulk at Augusta and tax across the bridge.

"The distance, and by a continuous and uninterrupted railroad from Charleston to Greenville, and to Charlotte, will not exceed 250 miles, and the rate of freight on grain may be fixed at 12½ cts. per bushel, and on flour from 75 to 80 cts. per bbl., being in favor of the Greenville and Charlotte route, over that to the Cherokee county in Georgia, on grain from 12½ to 17 cts. per bushel, and on flour from 45 to 57 cts. per bbl. The proportional reduction on freight or other articles, such as tobacco, potatoes, fruit and feathers, of which the interior of North Carolina is productive, will be no less advantageous."

#### Connellsville Railroad.

The Stockholders of the Pittsburg and Connellsville railroad company held a meeting on Tuesday afternoon, 27th ult., and passed resolutions setting forth that from the friendly disposition of the citizens of Baltimore, as evinced in the proceedings of their meeting of the 3d ult., the stockholders "are disposed to make one effort more to complete an arrangement with the Baltimore and Ohio railroad company." The whole subject is therefore referred back to the directors, with full power to act in relation to the whole matter. The meeting adjourned to meet on the 19th inst.

In connection with this subject, we see it stated that a committee of citizens, among them the Hon. Louis McLane, left Baltimore on Thursday for Wheeling, to endeavor to compromise with the citizens of that place the late law of the State of Virginia, granting the right of way to the Baltimore and Ohio railroad company, through that State.

#### Foreign Correspondence.

We have, again, the pleasure of a letter from Mr. Hedge, who has been for some time past in London. He has an opportunity of witnessing, to some extent, the operations—not only of the railway system in England, but also of those who are applicants for new—and, oftentimes, to those now in use, rival—lines; and, notwithstanding the constant demands of his own business upon his time, we hope to derive many useful and interesting facts from him. To the readers of the Journal, who have made his acquaintance, during the long period of his connection with it, we are quite sure it will be gratifying to learn that he is well, and in fair prospect of success in his present enterprise.

We continue his statement—showing the weekly receipts upon 33 railways. The amount is, as he remarks, "enormous"—almost incredible—yet such are the facts—and they may be looked upon as indicative of the future in this country.

He says, in his letter, dated "7 Howard Street, Norfolk Street Strand, London, March 30th, 1847—I sent you per ship Gladiator, February 6th, a letter and a map of the railways in operation, and those projected, and now before Parliament, which is said to be quite complete; they appear to be marked out in almost every direction, and when completed will enable a traveller to reach almost any point by rail, as John says. I do not exactly understand why it should necessarily be so much more expensive to

travel by rail in this country than it is with us, but still it is the fact that fares are double, at least, what they are in the United States; and the carriages are not to be compared with those used on most of the roads in the United States. I sent, as above, a table of weekly receipts on a few of the roads, which I have continued to collect; and send annexed the amount received on the same roads for the four weeks last past; it appears to me to be an enormous sum: how does it compare with the amount received on our roads? I have read with great interest the articles which appeared in the Journal of 20th and 27th Feb., upon the Great Central Railroad from Philadelphia to St. Louis. If a paper, as ably written, upon each of the great main lines throughout the country, could be obtained, and published in the Journal, in succession, it (the Journal) would—must—be sought by all the intelligent readers of the country, to guide them in a proper understanding of the great interest of the country, and it would be bestowing upon them a boon indeed, while at the same time it would be the means of insuring you, the ability to pay for, and thus secure the contributions, of a class of men eminently capable of communicating the results of years of experience and careful study, directed exclusively to the necessities of the different States, and the best means of developing and forwarding business: it would also stamp legibly upon the Journal, its value as the only paper in the United States to be relied upon, on the study now uppermost in the mind of the world. There has been sharp work in the railroad committee rooms this session of Parliament, every line and portion of a line, indeed every inch, meets with opposition from rival lines, and if everything pertaining to an application be not exactly according to the rules laid down, it is immediately thrown overboard, or, rather, out. I was listening the other day to an opposition to a Scotch branch line, when a friend who accompanied me, pointed out an eminent Scotch engineer, and said of him, that a certain company made proposals to him to take charge of the work, and desired his

terms, which in due time he communicated, and being considered quite too high, he was asked to reconsider, which he did—and added another £10,000!

"The shareholders of the Ulster, (Irish railroad, 25 miles long) have recently had a half-yearly meeting; the receipt for six months were, for passengers, £11,991, for goods, £6,996, total, £18,987; expenses, £7,468; leaving a net profit of £11,519 = \$55,759—out of which they paid a dividend of £1 per share. This road had but a single track up to 1st January, at which time a second track was opened, of a different gauge—the old one being 4 feet 8½ inches, and the new one 5 feet 3 inches—the Irish standard gauge. The passenger traffic is now confined to the new, and the goods to the old line. Resolutions were passed approving of the dividend, (of course,) and placing at the disposal of the directors £100 for charitable purposes, (very necessary and proper at this time)—and giving £30 to the Stewards of the Down corporation, to be run for at the next races!! I expect the latter portion of the proceedings is peculiar to 'Ireland and the Irish'—and its meaning I do not understand, but presume it must come under the head of 'business created by the opening of the Ulster railway.'

"I have been over a portion of the Great Western railway, and the South Western—have also been over the Croydon atmospheric, and examined it; it seems to work well—but it does not seem to be much in favor. They have recently opened two miles more, making seven miles in all. Mr. Samuda, the patentee, has recently met with quite a loss in the burning of his works at Blackwall. \* \*

"I do assure you it is a great pleasure to receive the Railroad Journal regularly. How the croakers must be disappointed in the more than entire success of the Reading road, as set forth in their recent report. To the few who have constantly predicted success, how gratifying—and to the poor consumers of coal, what a real blessing!!

"Your obedient servant,

"E. HEDGE."

#### RAILWAYS.

	Length in miles.	Week ending Feb.	Amount. £ s. d.	Week ending March	Amount. £ s. d.
Arbroath and Forfar.....	15	26	580 8 2	5	586 5 7
Chester and Birkenhead.....	14½	25	737 12 1	4	738 17 11
Dublin and Drogheda.....	31	25	681 5 0	9	680 18 1
Dublin and Kingstown.....	6	Mar. 2	268 2 3	7	263 9 9
Dundee and Arbroath.....	16½	Feb. 28	762 10 6	6	797 1 3
East Lancashire.....	28	27	8,680 12 9	7	8,655 8 4
Eastern Counties.....	126	28	3,340 8 3	6	3,234 8 10
Edinburg and Glasgow.....	46	27	2,210 6 5	6	2,157 15 10
Glasgow, Paisley and Ayrshire.....	51	27	992 16 3	7	1,008 14 4
Glasgow, Paisley and Greenock.....	22½	27	15,670 10 1	6	15,708 9 0
Great Western.....	221½	28	1,020 9 10	6	1,045 3 0
Great Southern and Western—Ireland.....	56½	27	35,212 8 10	6	35,230 17 4
London and North Western.....	333	27	6,113 10 3	7	6,058 15 5
London and South Western.....	92½	28	5,200 12 8	6	5,076 11 0
London, Brighton and South Coast.....	95½	27	716 9 0	7	701 10 10
London and Blackwall.....	3½	28			
Midland, Bristol and Birmingham, Leeds and Bradford, Nottingham and Lincoln—4 roads.....	268½	27	16,983 5 3	6	17,013 12 6
Manchester and Leeds—including Bolton and Preston District.....	94½	27	7,700 10 4	6	7,798 13 8
Manchester, Sheffield and Lincolnshire.....	40	27	1,760 6 10	6	1,751 1 4
Newcastle and Berwick.....	7	27	616 12 0	6	601 16 4
Newcastle and Carlisle.....	61	27	2,020 9 2	6	2,000 4 0
Norfolk.....	58	28	1,510 11 3	7	1,501 12 0
North British—including Dalkieth Branch.....	72½	27	1,342 2 9	6	1,322 11 8
Preston and Wyre.....	19	27	538 8 10	6	540 7 4
South Eastern.....	143	27	5,694 14 1	6	5,766 16 3
South Devon.....	20	26	519 6 10	5	427 16 5
Shrewsbury and Chester.....	15	26	326 19 5	5	319 11 0
Taff Vale.....	30	27	1,298 2 1	6	1,307 14 1
Ulster.....	25	28	722 10 3	7	724 10 6
York and Newcastle.....	107	27	8,213 4 8	6	8,206 14 9
York and North Midland—with Leeds and Selby.....	155	27	5,227 7 11	6	5,196 1 1
Paris and Rouen.....	84	Mar.	5,314 0 0	8	6,101 0 0
	2187½		£133,777 7 0		£141,615 11 0
			\$647,462 43		\$685,419 36

## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

## Return of the Fitchburg Railroad Company, under the Act of April 16, 1846.

Capital stock	\$1,763,400
*Increase of capital since last report	440,900
Capital paid in, per last report	1,322,500
Capital paid in since last report	599,075
Total amount of capital stock paid in, (including 25 per cent. on 3527 shares new stock, created June 25th, 1846)	1,851,575
Funded debt, per last report	None.
Funded debt paid since last report	None.
Funded debt, increase of, since last report	None.
Total present amount of funded debt	None.
Floating debt, per last report	97,306 25
Floating debt paid since last report	97,306 25
Floating debt, increase of since last report	None.
Total present amount of floating debt	" except reservations
Total present amount of funded and floating debt, (on contracts not completed.	
Average rate of interest per annum on do.	5 to 5 1/4 per cent.

## COST OF ROAD AND EQUIPMENT.

†For graduation and masonry, per last report	\$298,121 91
†For graduation and masonry, paid during the year	60,690 80
Total amount expended for graduation and masonry	\$358,813 71
For bridges, per last report	102,938 08
†For bridges, paid during the past year	43,175 16
Total amount expended for bridges	146,113 24
For superstructure, including iron, per last report	327,545 84
†For superstructure, including iron, paid during the past year	85,080 88
Total amount expended for superstructure, including iron	512,626 72
For stations, buildings and fixtures, as per last report	119,063 81
†For stations, buildings and fixtures, paid during the past year	41,441 93
Total amount expended for stations, buildings and fixtures	160,505 73
For land, land-damages and fences, per last report	336,088 24
†For land, land-damages and fences, paid during the past year	91,233 51
Total amount expended for land, land-damages and fences	427,321 83
For locomotives, per last report	66,245 14
†For locomotives, paid during the past year	13,900 00
Total amount expended for locomotives	79,445 14
For passenger and baggage cars, per last report	20,309 40
†For passenger and baggage cars, paid during the past year	10,650 00
Total amount expended for passenger and baggage cars	30,959 40
For merchandize cars, per last report	60,746 94
†For merchandize cars, paid during the past year	39,745 77
Total amount expended for merchandize cars	100,492 71
For engineering and other expenses, per last report	46,418 67
†For engineering and other expenses, paid during the past year	12,622 76
Total amount expended for engineering and other expenses	59,041 44
Total cost of road and equipment	\$1,875,318 92

## CHARACTERISTICS OF ROAD.

Length of road	49-343m. fm depot to depot.
Length of single track	" " "
Length of double track	5-113 miles.
Length of branches owned by the company, stating whether they have a single or double track.	11900 ft. single tk. to Fresh Pond a Spy ponds fm main road a 1275 feet below depot in Charlestown of double tk.
Weight of rail per yard in main road	56 lbs.
Weight of rail per yard in branch roads	56 lbs.
Maximum grade, with its length in main road.	40 ft. 5 1/2m. in the aggregate made up of 4 separate plains on dif. parts r'd.
Maximum grade, with its length in branch roads.	15 feet. 1866 feet long.
Total rise and fall in main road	739 1/2 ft. rise, 313 1/2 ft. fall.
Total rise and fall in branch roads	2-7 ft. rise, 5-6 ft. fall.
Shortest radius of curvature, with length of curve in main road.	818 feet and 500 feet long.
Shortest radius of curvature, with length of curve in branch roads	573 feet and 300 feet long.
Total degrees of curvature in main road	1694 1/2 deg.
Total degrees of curvature in branch roads	456 deg.
Total length of straight line in main road	34-67 miles.
Total length of straight lines in branches	3367 feet above depot in Charlestown, & 850 below do. leading to the wharves.
Aggregate length of truss bridges	454 feet.
Whole length of road unfinished on both sides	About 1 1/2 miles, and about 2 miles where the track is not entirely filled.

## DOINGS DURING THE YEAR.

Miles run by passenger trains	140,424 miles.
Miles run by freight trains	48,173 miles.
Miles run by other trains	11,715 miles.
Total miles run	200,312 miles.
Number of passengers carried in the cars	327,034 on road & branch.
Number of passengers carried one mile	5,961,872
Number of tons of merchandize carried in the cars	201,800
Number of tons of merchandize carried one mile	3,351,310
Number of passengers carried one mile, to and from other roads	187,515 from Lexington [and W. Cambridge]
Number of tons carried one mile, to and from other roads	5,491 do. do.
Average rate of speed adopted for passenger trains, including stops	30 miles per hour.
Average rate of speed adopted for freight trains, including stops	10 miles per hour.

Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile 7,091,900 tons, as nearly as the same can be estimated, including baggage and milk carried on the passenger trains.

Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile 4,217,893 tons.

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron	\$10,371 52
For repairs of truss bridges	450 00
For renewals of iron, including laying down	
For wages of switch-men, gate-keepers and flag-men	5,763 82
For removing ice and snow	251 70
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses	704 25
Total for maintenance of way	\$17,440 29

## MOTIVE POWERS.

For repairs of locomotives	8,321 18
For new locomotives to cover depreciation	
For repairs of passenger cars	3,700 20
For new passenger cars to cover depreciation	
For repairs of merchandize cars	4,837 37
For new merchandize cars to cover depreciation	
For repairs of gravel and other cars	537 00
Total for maintenance of motive power	17,395 75

## MISCELLANEOUS.

For fuel and oil	28,905 51
For salaries, wages and incidental expenses, chargeable to passenger department	17,771 86
For salaries, wages and incidental expenses, chargeable to freight department	25,680 34
For gratuities and damages	543 56
For taxes and insurance	647 52
For ferries	
For repairs of station building, aqueducts, fixtures, furniture	516 14
For interest	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company	
For amount paid other companies as rent for use of their roads, specifying each company, [Lexington and West Cambridge Branch]	2,400 00
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	6,138 44
[The office expenses, except expenses of treasurer's office, are included in the expenses of freight and passenger departments.]	\$117,447 34

## INCOME DURING THE YEAR.

For Passengers:	
1. On the main road exclusively, including branch owned by company	125,118 12
2. To and from other roads, specifying what: [Lexington and West Cambridge Branch]	3,619 97
For Freight:	
1. On main road and branches owned by company	151,038 57
2. To and from other connecting roads: [Lexington and West Cambridge Branch]	767 43
U. S. mails, \$1,994. Rents, \$4,107 27	6,101 27
Total income, (from Jan. 1, '46 to Jan. 1, '47)	286,645 36
Net earnings after deducting expenses	169,197 95
[The dividends are made up Feb. 1st and Aug. 1st]	

## DIVIDENDS.

[Feb. 1, 1846, 5 per cent. on \$1,322,500]	\$66,125
[Aug. " " " " " 1,763,400]	88,170
	154,295 00
Surplus not divided, [including 5 mos. net earnings]	114,739 39
Surplus last year do.	99,836 37
Total surplus, do.	114,739 39



**ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:**  
 Road and bridges, [nearly new, and we have not charged off anything to depreciation beyond renewals.]  
 Buildings, do. do.  
 Engines and cars, [under this head, we have charged off to depreciation, \$4,118 60, to Feb. 1, 1846.]

## NOTES.

\* 3526 shares were created June 25, 1846, in addition to the above, on which \$25 per share has been paid, amounting to \$88,175.

† The amount of interest paid stockholders while the road was constructing, \$60,165 93; and also the price paid the Charlestown Branch railroad company for their road, have been apportioned among the different items of cost of road and equipments. The Charlestown Branch road has been paid for during the past year.

‡ Including purchase of Charlestown branch railroad.

We have agreed with the Lexington and West Cambridge railroad company to furnish cars and engines, and man their road for one year from the 1st day of September last, paying them at the rate of four per cent. per annum on the cost of their road, being about \$180,000; they keeping the road and buildings in good repair during the year. A large part of the freight on our road, to wit, ice, wood, ship-timber and bricks, is neither loaded nor unloaded by us; hence that expense does not appear in our freight expenses, as it is paid by the owners.

We have to report the following accidents:

May 17, 1846, Mr. Otis Gregory, freight conductor, while changing a car out of the freight train at Concord, with a yoke of oxen, was thrown on to the track, and one of the wheels passed over his foot, from the effects of which he lost his life in about one week.

July 9th, our special train to Waltham came in collision with a horse and buggy, at a crossing in Waltham, and broke the buggy in pieces, but did not do any other damage of consequence.

July 13th, an Irishman was injured, at Concord, by attempting to get on to the cars after they had left the depot.

Nov.—, Mr. Fowle, of Shirley, was injured, at South Acton. By mistake, he had taken his seat in the up instead of the down train; when he discovered his mistake, the down train was in motion, and in attempting to get on to it, he fell, and the car wheel passed over his arm. He has since nearly recovered.

Also, in November, the special train came in collision with a wagon, owned and driven by Mr. Brooks, of Lincoln, and killed his horse.

In neither of the above cases can the accident be imputed to a want of care and attention on the part of the company's agents.

In November last, our 11 o'clock train for Fitchburg, came in collision with some freight cars at one of the brick yards, near Fresh pond meadows, which were run out on to the main track by a mistake on the part of the owners of the yard; owing to a northerly wind, which blew the smoke and steam from the brick kilns across the track, the cars were not discovered in season to stop the train before it struck them. The engineer and fireman were slightly injured, but no other damage done, excepting to the engine and cars, which have been since repaired.

In accordance with the terms of the act of incorporation in the charter, the Lancaster and Sterling branch railroad has become vested in this company. We have made several surveys on the line of the same, but, as yet, have done nothing further towards its construction. We have located the Watertown branch railroad to Watertown village, and expended, in its construction, the sum of \$30,750 27. We are not yet prepared to report the different items of cost on the same, nor the characteristics of the road.

All which is respectfully submitted by

Jacob Forster, Horatio Adams, David Loring, Henry Timmins, Abel Phelps, Elias H. Derby, N. F. Cunningham—*Directors.*

## The Gauges.

We take the following comparative statement from the Railway Record of 27th March.

Average speed of 12 daily trains now running on the London and Birmingham, and Great Western, from Euston square to Birmingham, and from Paddington to Bristol; showing the present relative speed of the broad and narrow gauge, by the practical working of the two lines, and the real day's work done for the public. The advantage is 1½ miles per hour ONLY in favor of the Great Western; not sufficient mechanical superiority to compensate for the numerous breaks of gauge, which must result if the broad gauge extends to the north.

## GREAT WESTERN.

Leave Paddington.	Arrive at Bristol.	Time on the road.		
		h.	m.	Stop.
6 0	10 0	4	0	12
6 30	3 40	9	10	26
7 30	12 18	4	48	16
9 45	12 28	3	43	3
10 15	2 35	4	20	9
10 30	7 30	9	0	26
12 0	4 25	4	25	9
1 0	5 30	4	30	15
2 0	6 25	4	25	11
4 45	9 35	4	50	17
5 30	8 15	4	45	4
8 55	1 15	4	20	11
		59	16	159

118 miles. Average speed of 12 trains, 24 miles an hour.

## LONDON AND BIRMINGHAM.

Leave Euston square.	Arrive at Birmingham.	Time on the road.		
		h.	m.	Stop.
7 0	2 40	7	40	22
6 15	10 50	4	35	9
7 30	12 35	5	5	18
8 30	12 45	4	15	5
10 0	1 25	3	25	4
11 0	3 35	4	35	10
12 30	5 35	6	5	16
2 45	7 25	4	30	8
5 0	8 0	3	0	2
5 30	10 0	4	30	10
8 45	1 5	3	40	6
Add another 3d class train to make 12. The Great Western have two.		7	40	23
		59	0	133

112 miles. Average speed of 12 trains, 22½ miles an hour.

## ITEMS.

**Damages for the death of a Railroad Passenger.**—We understand that Doctor Alfred Hitchcock, of Ashby, brother of the late Dr. Henry D. Hitchcock, of Middleboro', who was killed on the 23d of February last, by a collision of cars on the Fall River railroad, has made an adjustment of the claims of the widow and heirs against said company. The company, through their treasurer, David Anthony, Esq., of Fall River, has paid to the legal claimants the sum of \$4500, and have received a discharge from any further liability.—*Boston Journal.*

**Connecticut and Passumpsic Rivers Railroad.**—We are pleased to hear of the success of this corporation in obtaining means to forward the building of their road. In another column will be found an advertisement for contracts to complete the grading and masonry of 34 miles of its extent, to be bid for by sections, the plans for which may be seen at the office of the company.—*Boston Courier.*

**Northern N. H. Road.**—The indications are that this road will be completed within the time named, say in November, or thereabouts. The work is about to be commenced on the bridge across the Connecticut, to join the Northern and Central roads, and it is expected it will be done in September.

**Vermont Central.**—The tendency of this road is upward and onward; we expect to see the iron horse upon a part of the road by the 1st of January next. The annual meeting of the stockholders, and also a meeting of the directors, will be holden in this village on the 4th of June.—*Montpelier Watchman.*

**Ogdensburg Railroad.**—We understand that the directors of the Ogdensburg railroad, at their recent meeting, voted to pay 7 per cent. interest on moneys paid in by stockholders, until the road is completed and in operation.

**Portsmouth and Concord Railroad.**—The ground was broken on the first section of this railroad, at the Portsmouth Plains, on Monday morning. Remarks were made on the occasion by A. W. Haven, President of the company, Samuel Cushman and A. Ladd.—Messrs. Belknap & Co. are the contractors.

**Boston, Concord and Montreal Railroad.**—This enterprise, the success of which is demanded by the imperious necessity of people living in the very important and thriving towns along the route, is likely to be carried into satisfactory and speedy execution.—*Boston Courier.*

**Schuylkill County.**—By the census of '40, the population of Schuylkill county is set down at 29,051. From the great improvement in business, and rapid increase of population, there is no doubt but that the population of the county at this time, exceeds 40,000 inhabitants. Few counties in the State have increased more rapidly than Schuylkill in population since 1840.

**Extraordinary Steam Hammer.**—A huge hammer, worked by steam, has recently been erected at the works of Messrs. Peter Cato & Co., Liverpool, which, while it strikes with a force of five tons, is yet capable of such nice adjustment as to crack a walnut without bruising the kernel. Messrs. Morris &

Tasker, of this city, have one of the hammers in operation. They had it on exhibition at the last Fair of the Franklin Institute.

**Lake Superior.**—The following are the returns to the government office, of the copper ore taken out by the different companies for the month of January, viz: Pittsburg and Boston company, 300,000 lbs.; Copper Falls company, 20,000; Bohemia, 40,000; North West, 10,000; Eagle River, boulders pure, 1,000; Eagle Harbor, 4,000; North Western, 4,000; Suffolk, 200,000; Luc La Belle, 20,000.

**Iron Bridge Rail.**—Mr. Wood, of the British Iron Company's works in Abersychan, recently succeeded in rolling iron rails weighing 90 lbs. per yard, and 30 feet in length. These rails are said to be perfect, and very nicely finished. It is difficult to say where the limits to the size of iron rails will be found.

**The Wheeling Bridge.**—Books were opened at Wheeling for subscriptions to the stock for the bridge over the Ohio at Wheeling. At the end of the second day, \$92,000 of stock was taken, and the first instalment paid. The books were to be kept open another day. We think the whole stock required is \$200,000.

**Railways.**—Strong efforts are making to raise means for constructing railways from Pittsburg westward, through Ohio, and to connect with Lake Erie at Cleveland. Two routes are proposed. One through Beaver, Salem, etc. to Akron, thence north to Cleveland, and southwest by Wooster, etc., to Columbus and Cincinnati. The other from Wellsville, by Canton, Massillon and Wooster to Columbus, branching north to Cleveland. Either of these plans, it is claimed, will save the expense of two roads, for a considerable distance. The line from Pittsburg or Wellsville, to Akron or Massillon, to be used as part of the line connecting Cleveland

with Pittsburg and the east, and southeast, and also as the line connecting Cincinnati with Cleveland, Pittsburg and the eastern cities.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the Railroad JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LES. OZ.	INCH.	LES. OZ.	LES.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

### RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.



# **RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.**

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

## **TEST No. 10.**

*Certificate from Mr. Silas C. Field, of Vicksburg, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature. In the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well-merited.

S. C. FIELD.

## **TEST No. 11.—Certificate.**

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's Improved Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being slightly scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being pitch pine. While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof*.

GORRÉ & KING.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July 19, 1845.*

The undersigned purchased of A. S. Martin, No. 134½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat.

RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 134½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards.

(Signed.)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from \$50 to \$500 each. For sale by

A. S. MARVIN, General Agent,  
134½ Water st., N. Y.

Also by Isaac Bridge 75 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C.

# **FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Buren, Engineer and Supt Hartford and New Haven Railroad; W. R. McKee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Ouyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Flak, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

## **PATENT HAMMERED RAILROAD, SHIP**

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 9 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.  
Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston.

ja45

## **MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Patterson, N. J., or 60 Wall street, N. York.

## **PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

## **SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

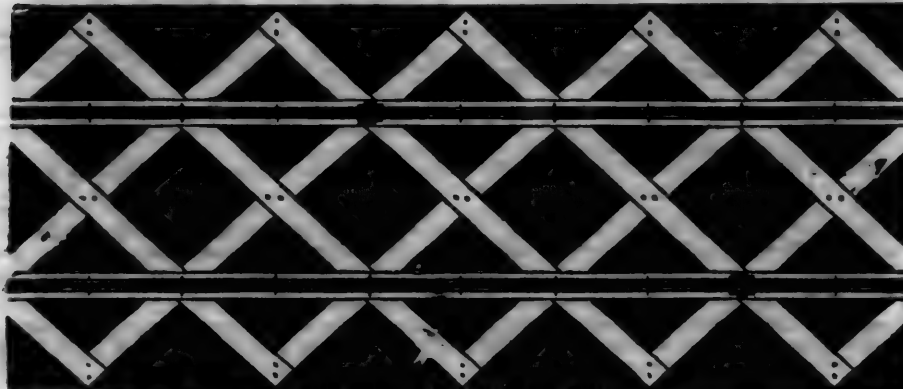


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10¢

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor, D. K. MINOR.

ENGINEERS' AND SURVEYORS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia. 10 near Third.

## LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25 28 Platt street, New York.

## RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,  
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

## ENGINEERS AND MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 20.)

SATURDAY, MAY 15, 1847.

(WHOLE No. 569, VOL. XX.)

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, P.A.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
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One square ".....	2 50
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One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 25, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7 a.m. and 3 p.m., and Providence at 8 a.m. and 3 p.m.

Dedham trains, leave Boston at 9 a.m., 3 p.m., 5 p.m., and 10 p.m. Leave Dedham at 8 a.m. and 4 p.m.

Stoughton trains, leave Boston at 11 a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2 p.m.

All baggage at the risk of the owners thereof.  
21 ly W. RAYMOND LEE, Sup't.

## BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fare. Miles. No. 1. No. 2.  
Between Phila. and Pottsville, 92 \$3.50 and \$3.00

" " Reading, 58 2.25 and 1.90  
" " Pottsville, 34 1.40 and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 3 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 3 p.m. Distance, 26 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above.

35 ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

## SUMMER ARRANGEMENT, April 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7 A.M. and 3 P.M.  
Leave Portland at 7 A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 5 P.M.  
Leave Great Falls at 6 A.M.

### HAVERHILL TRAINS.

Leave Boston at 11 A.M. and 6-20 P.M.  
Leave Haverhill at 6 A.M. and 4 P.M.

### READING TRAINS.

Leave Boston at 8 A.M. and 8 P.M.  
Leave Reading at 6 A.M. and 1 P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7 A.M., 9 A.M., 3 P.M., 5 P.M.  
Leave Medford at 6 A.M., 11 A.M., 4 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

31 ly CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will

run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—  
Leave New York at 7 A.M. and 4 P.M.  
" Middletown at 6 A.M. and 5 P.M.

Fare reduced to \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—  
Leave New York at 8 P.M.  
" Middletown at 12 M.

The names of the consignees and of the staff where to be left, must be distinctly marked upon each article shipped. Freight not received after 9 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West, also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13

## NORWICH AND WORCESTER RAILROAD.

Road. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 31, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 6 a.m., and 4 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 3 p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4 p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 31 ly J. W. STOWELL, Sup't.

**LITTLE MIAMI RAILROAD.—OPEN**  
**TO SPRINGFIELD.**—Distance 84 miles—  
 connecting at Xenia and Springfield.  
 Field with Messrs. Neil, Moore,  
 & Co's. daily daylight lines of stages going east  
 and north, to Columbus, Zanesville, Wheeling,  
 Cleveland, and Sandusky City, via Urbana, Belle-  
 fontaine, Kenton, and the Mad river and Lake Erie  
 railroad, or Columbus, Delaware, and the Mansfield  
 and Sandusky City railroad—forming, by these con-  
 nections, the cheapest and most expeditious route to  
 Buffalo, Niagara Falls, Rochester, Albany, New  
 York, and Boston.

On and after Thursday, August 13, 1846, until  
 further notice, a Passenger train will run as follows:  
 Leave Cincinnati daily at 9 A. M., for Milford,  
 Foster's Crossing, Deerfield, Morrow, Fort Ancient,  
 Freeport, Waynesville, Spring Valley, Xenia, Old  
 Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35  
 minutes A. M. A line of Hacks runs in connection  
 with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon....\$1 00  
 " " " Xenia.....1 50  
 " " " Springfield...2 00  
 " " " Columbus...4 00  
 " " " Sandusky city 8 00

The Passenger trains runs in connection with  
 Strader & Gorman's line of Mail Packets to Louis-  
 ville.

Tickets can be procured at the Broadway Hotel,  
 Dennison House, or at the Depot of the Company,  
 on East Front street.

Further information and through tickets for the  
 Stage lines, may be procured at P. Campbell, Agent  
 on Front street, near Broadway.

The company will not be responsible for baggage  
 beyond 50 dollars in value, unless the same is re-  
 turned to the conductor or agent, and freight paid at  
 of a passage for every \$500 in value over that  
 amount.

The 11 P. M. train from Cincinnati, and the 2  
 40 P. M. train from Xenia, will be discontinued on  
 and after Monday, the 10th instant.

A freight train will run daily.

W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**  
**MAIN STEM.** The Train carrying the  
 Great Western Mail leaves Bal-

timore every morning at 7; and  
 Cumberland at 8 o'clock, passing Ellicott's Mills,  
 Frederick, Harpers Ferry, Martinsburgh and Han-  
 cock, connecting daily each way with—the Wash-  
 ington Trains at the Relay House seven miles  
 from Baltimore, with the Winchester Trains at  
 Harpers Ferry—with the various railroad and  
 steamboat lines between Baltimore and Philadelphia  
 and with the lines of Post Coaches between Cum-  
 berland and Wheeling and the fine Steamboats on  
 the Monongahela Slack Water between Brown-  
 ville and Pittsburgh. Time of arrival at both Cum-  
 berland and Baltimore 5 1/2 P. M. Fare between  
 those points \$7, and 4 cents per mile for less distan-  
 ces. Fare through to Wheeling \$11 and time about  
 26 hours, to Pittsburgh \$10, and time about 32 hours.  
 Through tickets from Philadelphia to Wheeling  
 \$13, to Pittsburgh \$12. Extra train daily except  
 Sundays from Baltimore to Frederick at 4 P. M.,  
 and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at  
 night from Baltimore and at 6 A. M. and 5 1/2 P. M.  
 from Washington, connecting daily with the lines  
 North, South and West, at Baltimore, Washington  
 and the Relay house. Fare \$1 60 through between  
 Baltimore and Washington, in either direction, 4  
 cents per mile for intermediate distances. 213y1

**MANUFACTURE OF PATENT WIRE**  
 Rope and Cables for Inclined Planes, Stand-  
 ing Ship Rigging, Mines, Cranes, Tillers etc., by  
 JOHN A. ROEBLING, Civil Engineer,  
 Pittsburgh, Pa.

These Ropes are in successful operation on the  
 planes of the Portage Railroad in Pennsylvania, on  
 the Public Slips, on Ferries and in Mines. The  
 first rope put upon Plane No. 3, Portage Railroad,  
 has now run 4 seasons, and is still in good con-  
 dition. 2v19 1y

**BALTIMORE AND SUSQUEHANNA**  
 Railroad.—Reduction of Fare, Morning and  
 Afternoon Trains between Balti-

more and York.—The Passenger  
 trains run daily, except Sunday, as follows:  
 Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
 Arrives at.....9 a.m. and 6 1/2 p.m.  
 Leaves York at.....5 a.m. and 3 p.m.  
 Arrives at.....12 1/2 p.m. and 8 p.m.  
 Leaves York for Columbia at..1 1/2 p.m. and 8 a.m.  
 Leaves Columbia for York at..8 a.m. and 2 p.m.

#### FARE.

Fare to York.....\$1 50  
 " Wrightsville.....2 00  
 " Columbia.....2 12 1/2  
 Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Har-  
 risburg.....\$9  
 Or via Lancaster by railroad.....10  
 Through tickets to Harrisburg or Gettysburg...3  
 In connection with the afternoon train at 3 1/2 o'clock,  
 a horse car is run to Green Spring and Owing's  
 Mill, arriving at the Mills at.....5 1/2 p.m.  
 Returning, leaves Owing's Mills at.....7 a.m.  
 D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVAN-**  
**NAH TO MACON.** Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses

and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor,

not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**NEW YORK & HARLEM RAILROAD**

CO.—Winter Arrangement.

On and after Monday, November 23,

1846, the cars will run as follows:

Leave 27th street for 49d street, Deaf and Dumb  
 Institute, Yorkville, Harlem Morrisiana, and Wil-  
 liams' Bridge, at 7 o'clock a.m. From City Hall  
 for above named places, 2 p.m. [freight train.] 2 30

p.m. 5 p.m. to Morrisiana only.  
 Leave City Hall for Harlem, Morrisiana, Ford-  
 ham and Williams' Bridge, at 7 45 a.m., and 10 45

a.m.; 1 15 p.m., 2 p.m. [freight train.] 2 30 p.m. and  
 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuc-  
 kahoe, Hart's Corners White Plains, Davis' Brook,  
 Unionville and Pleasantville, [Pleasantville 4 miles  
 from Sing Sing.] 7 45 and 10 45 a.m.; 1 15 p.m., 2

p.m. [freight train], and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and  
 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train]  
 and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train.] and  
 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.  
 m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35,  
 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermedi-  
 ate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11,  
 and 3 15 p.m.

Leave City Hall for Williams' Bridge and inter-  
 mediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50  
 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**PHILADELPHIA, WILMINGTON &  
 BALTIMORE RAILROAD.—1847.**

Winter Arrangement.

Philadelphia for Baltimore... 8 a.m. and 4 p.m.

Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and  
 west, as per notice of the Baltimore and Ohio Rail-  
 road—and with Mail Lines north from Philadelphia,  
 both morning and afternoon.

Sundays, the Morning Lines do not run in either  
 direction.

Accommodation train from Wilmington to Phi-  
 ladelphia, leaves Wilmington at 8 a.m. and returns  
 at 9 p.m.

J. R. TRIMBLE,

Engineer and General Superintendent.

**GEORGIA RAILROAD. FROM AU-**

**GUSTA TO ATLANTA.—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM AT-

LANTA TO OOTHEALOGA, 80 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a con-  
 tinuous line, 268 miles in length, from Charleston  
 to Oothcaloga on the Oostenaula River, in Cass Co.,  
 Georgia.

RATES OF FREIGHT.

		Between Augusta and Oothcaloga and Dalton.	
		20 miles.	26 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cu- bic foot.....	16	26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Con- fectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Lea- ther, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tal- low, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hoghead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cut- ters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or  
 more, will be carried over the above roads at 2 cents  
 per mile.

Goods consigned to S. C. Railroad Co. will be  
 forwarded free of commissions. Freight may be  
 paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846. 44 1y

**THE WESTERN AND ATLANTIC**  
 Railroad.—This Road is now in operation to  
 Oothcaloga, a distance of 80 miles, and connects  
 daily (Sundays excepted) with the Georgia Rail-  
 road.

From Kingston, on this road, there is a tri-weekly  
 line of stages, which leave on the arrival of the cars  
 on Tuesday, Thursday and Saturday, for Warren-  
 ton, Huntsville, Decatur and Tusculumbia, Alabama,  
 and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga  
 for Chattanooga, Jasper, Murfreesborough, Knox-  
 ville and Nashville, Tennessee.

This is the most expeditious route from the east to  
 any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

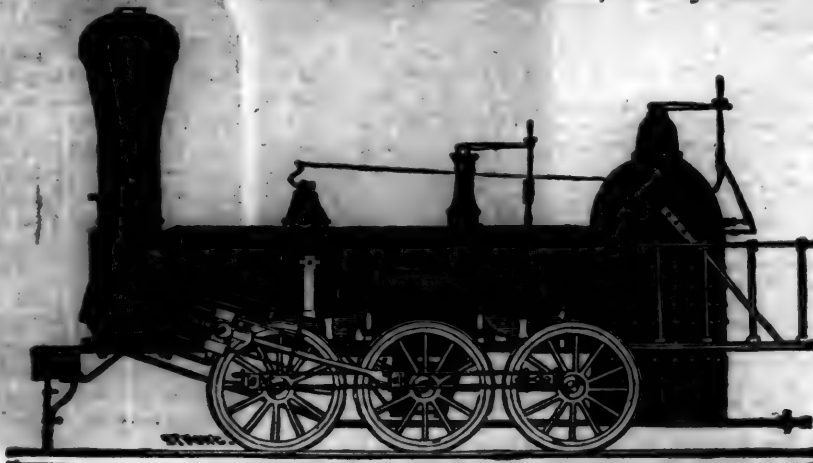
Atlanta, Georgia, April 16th, 1846. 1y1





# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand **A. & G. RALSTON** Mar. 30th 4 South Front St., Philadelphia. 38th

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,477 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 900 feet long by 90 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

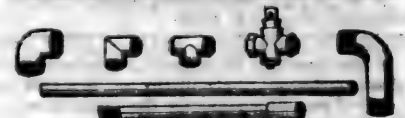
For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 3 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 3 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 117

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**



## Iron Manufacture.

## ELECTRO METALLURGY.

(Continued from page 296)

The following interesting experiments were made at Milton Iron Works, by Mr. Hawthorne, the Manager, in presence of the Proprietor and others, during the month of December, 1844. A copy was handed to Mr. Wall while on a visit there in the following March.

## Non-electrised.

Bars.	Breaking weight.	Deflection.
No. 1	491½	1,521
2	533½	1,710
3	512½	1,550
4	582½	1,650
5	568½	1,630
6	540½	1,550
	3120	9,611

## Electrised.

Bars.	Breaking weight.	Deflection.
No. 1	603½	1,700
2	617½	1,870
3	603½	1,760
4	668½	1,760
5	554½	1,630
6	668½	1,753
	3716	10,473

Non-elect. deducted, 3220

Total difference, 487

Average difference per bar, 81,166

The next trials took place at Butterly, Codnor Park, Derbyshire, at the Iron Works belonging to Mr. W. Jessop. But they were, in all respects, so similar to those at Milton, that in order to avoid a tedious repetition, we will not enter into details, as the testimony of the respected proprietor, in a letter to a friend of the patentee, on the results, will be amply sufficient.

Butterly, June 21, 1844.

DEAR SIR: I forwarded to you a piece of puddled iron in the rough bar, made from pig iron which had been electrised by thirty-two jars, and it is as good a specimen of puddled iron as I ever saw. It was puddled the day after you were at Condor Park. I cannot understand how electricity should act on the iron, but it certainly has a good effect in purifying the iron from the extraneous matter with which it is alloyed. I must leave it to Dr. Ure to explain the phenomenon. All the work people agree in the fact.

I am, dear sir, your's truly,  
W. JESSOP.

The following report was given by Dr. Ure soon after the experiments at Butterly:  
London, 13 Charlotte St., Bedford Square, }  
July 13, 1844. }

Mr. Wall's patent process for improving iron is founded on the well-established fact, that when a compound is subjected to an electrical current, its negative and positive elements are detached from one another. Crude iron contains more or less carbon, sulphur, phosphorus, arsenic, silicon, oxygen, bodies

all electro-negative in relation to iron, which is electro-positive. When impure iron, as it flows from blast furnaces, is subjected, during its cooling and consolidation, to a powerful stream of voltaic electricity, the chemical affinities by which its various heterogeneous components are firmly associated, are immediately subverted, whereby, in the case of crude iron, the sulphur and phosphorus, which destroy or impair its tenacity and malleability, become readily separable in the act of puddling. On this principle, I would explain the extraordinary effect of Mr. Wall's patent electric process, as performed in my presence in the excellent iron works of Mr. Jessop, at Condor Park, Derbyshire, where the electrised forged pigs discharged those noxious elements so copiously in the puddling furnace as to become, after a single re-heating, without piling or faggotting, brilliant bars of the finest fibrous metal. The bars so made have been subjected, under my inspection, to the severest proofs, by skilful London blacksmiths, and they have been found to bear piercing, hammering, bending and twisting, as well as the best iron in the market. I have analysed the said iron with the utmost minuteness of chemical research, and have ascertained it to be nearly pure metal, containing neither sulphur or phosphorus, and merely an inappreciable trace of arsenic. I can, therefore, conscientiously recommend Mr. Wall's patent process to ironmasters, as one of the greatest, easiest, and most economical improvements which their art has ever received.

The pecuniary advantages of this process, in respect to saving of labor and waste of material, has been estimated by competent judges at from one pound to two pounds sterling per ton.

The effect of electrising iron is displayed in a singular manner by the conversion into steel of a soft rod, exposed, in contact with coke, for a few hours, to a moderate red heat—a result which I have witnessed and can fully attest.

ANDREW URE, M.D. F.R.S.

Prof. Chemistry and Analytical Chemist.

In further confirmation of the concluding paragraph of Dr. Ure's report, is the subjoined attestation.

Manning's Foundry, Blackwall, }  
July 16, 1844. }

We, the undersigned, do hereby certify, that we were present and saw Mr. Wall put a bar of iron, one inch broad by one-quarter of an inch on the edge, and two feet long, into a crucible, and in four hours it was taken out perfect blistered steel. During the process of conversion a small voltaic battery was applied, to which we attribute the results of the experiments. It is our joint opinion that no iron could be converted into steel in so short a time by the mere application of heat and carbonaceous matter as is generally used in that process.

B. MANNING,  
Proprietor.

WM. TIMMONS,  
Head Blacksmith, who worked the bar of steel.

The satisfactory results of the trials which have been enumerated, produced an impression novel as it was gratifying. A new era was pronounced to have commenced in the metallic departments, and if the plan were fairly dealt with, the market would soon be freed from that brittle and delusive article which had so long been imposed upon it.—When its efficiency, also, which had been so incontestably established, was considered in conjunction with the simplicity of its arrangement, and the trivial cost required for its purchase, all were unanimous as to the propriety of adopting so beneficial an agent. The consequences may be anticipated. Mr. Wall was literally besieged by the most pressing invitations from every part of the country: so that it became a matter of some difficulty how to act, or in what direction to proceed. Priority of application was the rule adopted, and as Wm. Scholefield, Esq., of Parkgate, stood first on the list, Mr. Wall proceeded to his establishment, where he arrived on the 27th of July, 1844.

The following day the first experiment was tried. To a mass of seven tons, was applied a battery consisting of forty pairs of platinized silver and zinc, eight inches by four, or more accurately, an exposed surface of six inches by three and a half, after deducting tare for clamps, etc. On the poles being brought into contact, vivid brushes of electricity were observable even in broad daylight. The two iron conductors attached to the pole wires issuing from the battery, and which were intended to convey the electricity to the molten mass, were found to be completely soldered together, and required the utmost exertion to separate them. The operations of such a battery were watched with the most intense interest, and the highest expectations were entertained of the results.—And they were fully answered. The metal, when afterwards puddled, hammered, and rolled, was found to be of the most excellent quality; its strength and fibre astonished all present, and the proprietor himself declared that he would not have believed it, had he not been an eye witness.

To give a narrative of the numerous and almost daily trials which took place at these works up to the end of February, 1845, would be tedious to the reader, and indeed superfluous. It would be more interesting to peruse the correspondence which passed between Mr. Wall and Mr. James Geach, manager of the furnaces, who superintended the battery, and minutely watched every trial during that period. His testimony will be unhesitatingly admitted by all who are acquainted with him, and his opinion, while emanating from one fully competent to decide, will not be suspected of any undue bias.

The following is the letter sent by Mr. Geach after Mr. Wall's departure.

Parkgate Iron Works, Rotherham, }  
August 9th, 1844. }

DEAR SIR: I received yours in due course of post, and in answer, beg to state, that Mr. Manning (Mr. Wall's assistant) is getting on well, and wrote you yesterday according to

your desire, and stated that the Earl Fitz-William called here the evening before, with his steward, Mr. Birom. I showed him some of the samples of the electrified iron, such as the specimens you took with you, at which he appeared much pleased, and wished to see some trials made himself, and desired me to let him know when you were coming here again, that he might meet you. I am happy to say the results of the iron are as usual. I had a cast of mottled metal electrified on the morning of your leaving for town, and that proved as good as the Nos. 3 and 4; and was worked together with them without at all deteriorating the manufactured article.— Perhaps white iron may answer in the same ratio, but not having had any, I cannot say further. On reading Dr. Ure's report in your's of yesterday, I can but add my testimony on the results of the iron flowing from the furnace into the beds, and being electrified—then being puddled, shingled and bolted down into billets, and four inch bars: and the fracture caused in breaking, compared with that of iron made in the ordinary way, is as *best or best best* to common. The cheapest and least troublesome way is, in my opinion, to connect the poles of the battery to the blast furnace, and electrify the iron therein before tapping, and then run it into pigs in the usual way. Some experiments were tried when you were here in that way, and the results were, that the iron was quite as good, if not better, than that run into the beds and electrified afterwards. I have made sixty or seventy tons more or less of this pig iron, and plates of iron, and invariably find it to be of excellent quality. Several specimens of Parkgate iron you have with you of experiments made at these works, will fully prove my assertions; and I consider it one of the best, easiest, and greatest improvements ever made in the manufacture of iron, by expelling all the sulphur, arsenic, etc., when in its crude state, before its being brought to the puddling furnace; and that a great saving will be effected in the manufacturing department.

I am, dear sir, yours respectfully,

JAMES GEACH.

The following are but extracts, as the letters contain other matters irrelevant to the subject under consideration.

Parkgate Iron Works, Dec. 4, 1844.

DEAR SIR: I am happy to inform you that no other iron is to be used at these works but that which has been electrified. We made some *best best* boiler plates from scrap iron last week, in the regular way; and some of the electrified iron, made into bolts, and reheated, and rolled off made much better than that. Our bars, sheets, etc., are all as good as can be wished for. I had almost forgot to say, some of our puddled bars have been sent into Staffordshire for trial, of which I have specimens, and can assure you they are most excellent. The Staffordshire gents, as far as I can understand, do not know what to make of it, not having seen the process as yet; but I think you might do some good among them were you to try.

JAMES GEACH.

Parkgate Iron Works, Dec. 20, 1844.

DEAR SIR: At Milton, Messrs. Graham have decided on keeping the battery on, and it was put to work again last Tuesday. For some weeks previously, they had been trying the strength of the metal after being electrified, and *vice versa* with puddling also.— Here we use all electrified iron, and I am happy to say, with such results, as have quite dumb-founded all who had so much to say against it. There was a trial yesterday by simple puddling, and ball-furnacing, then rolling into sheets, plates and bars, finished iron, and I can now aver that it is *better* than any of the *best best best* iron that was ever made on these works since they first started.

JAMES GEACH.

In conformity with the above extracts, might be cited the testimony of Dr. Dyson, the superintendent of the works. The apprehensions, however, of this gentleman, respecting the invention, were novel and somewhat ludicrous. He maintained that in the event of its adoption, an universal and confused equalization would take place; the countries now producing bad ore and worse metal, would be on a par with those which sent the *best best* article into the market. The process of reasoning by which it is attempted to show that an invention, which improves what is defective, deteriorates what is good, is difficult to comprehend; and we can but lament a state of things, in which such arguments are allowed to prevail in opposition to the improvements which genius and industry would introduce into science and art. To make the *best best* iron from common cinder, without admixture of rich ore or purer metal, has hitherto baffled the efforts of iron-masters. This, electricity has, in a great measure, achieved by forcing this refuse or peroxide of iron to give up its oxygen without any mixture, and thus bringing it almost to an equality with common merchant iron. But if such be the effects of the application of electricity to an inert and apparently useless mass of refuse, what must be the results of its action on good ore and superior metal. Or are we to suppose that it will be less efficient where there are fewer obstacles, and where its sphere of action is more favorable. Such reasoning is on a par with the excuses which were alledged for discontinuing the use of the battery at another great establishment, after the most convincing proofs of its efficiency and utility.

Among the numerous applications received by Mr. Wall, was one from Sir John Guest, the proprietor of the extensive works at Dowlais, in Wales. Well versed in chemistry, and familiar with the phenomena of electricity, Sir John, on reading the report of Dr. Ure, entered into the full merits of the question and convinced of the efficiency and importance of the discovery, at once proposed to enter into arrangements for a share in the patent. But a decided negative was given, on grounds highly creditable to Mr. Wall, who immediately saw that such a proceeding would materially injure, if not destroy, all the small manufactories, scarcely able, in the

actual state of things, to co-exist with the colossal establishment of the Welsh leviathan.

However, a trial was solicited and agreed upon; and on the 28th of August, 1844, Mr. Wall, having procured a battery of platinized silver and zinc of 100 pairs, eight inches by three and a half, left London, accompanied by an assistant, and arrived at Dowlais the following day.

Fortunately Sir John was at Dowlais, and Mr. Wall was directed by him to proceed to the works, where he would meet the superintendent, who had orders to render every assistance in his power. After a few preliminaries the battery was arranged for operations.

August 30, 1844.

"I had, says Mr. Wall, a small quantity of metal electrified to-day, in presence of the manager's son, as a prelude to further and more extensive operations. It was afterwards puddled with every care and attention; afterwards it was squeezed and rolled into puddled bars. Not a flaw was to be seen on the edge, nor indeed any of that deformity and brittleness observable in their ordinary metal. When cold, it was tested by breaking, and showed a fibre and tenacity equal to the *best* merchant bar. There was but one opinion on the subject, all the puddlers declared it to be the very best specimen of puddled bar which had ever been seen at their works. I was naturally desirous of preserving some specimens of this my first experiment here, for the purpose of showing them to Sir John Guest, as also to the head manager, who was confined to his house by sickness; but the said specimens were never seen afterwards, and when asked for could not be found. For the solution of the mystery, the succeeding experiments will enable the reader to form tolerably accurate conjectures.

September 4, 1844.

"A trial was made this day with twelve pairs of a Smee's battery on a lot of pig iron about 700 weight: the electricity being passed in a continuous stream through the mass. But at the end of 20 minutes I was obliged to desist, as the metal had become set. This I had never before observed to occur in so short a time. However I soon ascertained the cause to be the porous nature of the bed in to which the metal was run, being a compound of sand and half-pulverized coke cinder. This doubtless materially affected the results, as the battery was not allowed sufficient time to throw off the sulphur, etc., before the metal became consolidated. Besides the composition forming the bed for the metal, possessing a strong conductive power, impaired the effect of the electrical action. I have found metal, when in large quantities, and in sand beds, more effected by electricity produced from an ordinary battery of twenty-four pairs, than a few hundred weight acted upon by a battery of 60 pairs, when in a bed composed of the above materials. The larger quantity of metal, remaining longer in a fluid state, absorbs a greater portion of electricity, while the sand of which the bed is made prevents all escape of excess; whereas the rapid settling of a small quantity, checks



the electrical action, and the consolidated bar becomes itself a conductor, and dissipates the electric force amid the surrounding compound forming the bed. Although I was dissatisfied in my own mind, I allowed matters to proceed; and accordingly the electrised metal was puddled this afternoon, at the same time with some of the ordinary metal from the same furnace. This process had not long commenced, before appearances indicated some irregularity in the proceedings. The manager, who was present, was the first to express a remark on the occasion, and observed that the furnace the electrised metal was in seemed cold, as compared with the other furnaces, and that the metal did not boil. Nor was it intended to boil. My assistant chanced to hear the order given to the puddlers; the words were, 'Not to give the metal too much heat.' words intended, and well understood to convey a meaning beyond their literal import. In fulfilment of the injunction, no sooner had the metal assumed a semi-fluid state, about fifteen minutes after being thrown in, when the damper was let down on the chimney, and so effectually as to drive the flames out at the rake-hole over the grate, even to the hindrance of the puddler in his duty. The electrised iron was kept in the fire 20 minutes longer than the charge of ordinary metal; which, when taken out was squeezed and rolled in the usual manner, and presented the appearance of good iron. The electrised came out of the furnace scarcely balled, and held together only by means of the wheelbarrow full of cinder thrown in as its puddling complement. I need scarcely tell the result. It was squeezed as far as possible from the cinder, and when it was attempted to pass it under the roller, it crumbled in numerous fragments. I complained to the manager of the unfair treatment which this charge had received, and another charge of each metal was ordered to be worked. The person who had given the order on which I made a remark, was dismissed from his post, and another was appointed to superintend the puddling of the electrised metal. He worked the furnace much more efficiently, while not half the quantity of cinder was used in the process. The result was in every way satisfactory, and particularly gratifying from the circumstance of Sir John Guest arriving just at the time the rolling took place. As so favorable an opportunity might prove decisive, several trials and tests took place, and every means put in force to show the real qualities of the metal. My expectations were fulfilled, and the superiority of the process was triumphantly established."

It were useless to continue the narrative of the proceedings at Dowlais. The above extract is sufficiently conclusive of the efficiency and advantages of the process, and any further details would be only a tedious monotony. However, before proceeding to the illustration of the remark before made, respecting the application of the process to the peroxide of iron, it may not be uninteresting to give the results of a week's operations at the above named works.

Returns of puddled bar of electrised pig

metal at Dowlais, ending December 21st, 1844:—

	Dec. 17.	Tons.	Cwt.	Qrs.	Lbs.	Charges.
Tuesday,	13	15	4	9	78	
Do. night,	11	11	1	0	62	
Wednesday,	13	15	0	7	72	
Do. night,	13	10	0	23	71	
Thursday,	13	3	1	21	73	
Do. night,	13	12	0	20	70	
Friday,	14	9	2	1	76	
Do. night,	12	6	2	22	65	
Saturday,	15	10	0	20	80	

115 5 1 11

Of Dowlais ordinary pig metal it requires to make a ton—

	Cwt.	Qrs.	Lbs.
Of puddled bar,	25	0	0
Of Wall's electrised pig,	23	2	5
	1	1	23

	Tons.	Cwt.	Qrs.	Lbs.
Product as above,	115	5	1	11
Total gain,	8	14	1	0

The above is an ordinary diurnal return of the operations during the use of the battery, and furnished by parties connected with the establishment.

The facts which have hitherto been adduced, were principally intended to demonstrate the advantages, of the application of Mr. Wall's process in improving the quality and simplifying the manufacture of iron. But there are other results not less worthy of notice, as being equally important and beneficial.

It is well known to iron manufacturers that the operations of the blast furnace are very powerfully affected by the state of the atmosphere, and that the changes of the barometer are invariably answered by corresponding alterations in the appearance and quality of the metal produced. This influence extends even to the furnace itself, which at different periods is found to sour, and exhibit other symptoms of derangement. In rainy, lowering or stormy weather, the cinder, the test as it were of the metal, is observed to be of a dark color, rough and lumpy, and emitted more vivid scintillations during its transmission from the furnace to the sand bed or receptacle. On the other hand, when the weather has set in fair or frosty, it becomes thin, of a bright appearance, smooth, and of a fuller consistence. This difference is very striking on any sudden alteration of the weather, on any occasion of any preponderance of either the positive or negative electricities in the atmosphere. "I have known the men," says Mr. Wall, "foretell the weather from the appearance of the cinder, more correctly than either Moore or Murphy." Aware of these facts, he continues, and convinced of the active agency of electricity in the cause, I naturally felt a great interest in watching the effect of a well regulated battery on such occasions. In the ordinary mode of manufacturing, any excess or deficiency in the concomitant materials, as of limestone for example, produces in a few hours an important change in the quality of the metal produced. These different sorts are designated by the terms, white,

mottled, gray, etc. For the purpose of experiment, therefore, I caused the feeds or charges of the smelting furnace to be frequently varied; sometimes the quota of lime stone was increased or lessened to an extent of one-fifth beyond the usual complement. At other times a similar proceeding was observed in regard to the ore. Still, where the action of the battery was regularly kept up, scarcely an alteration was perceptible; and it was not until the lapse of three or four days, that any material change was to be observed. On the other hand, when the smelting furnace was regularly supplied, and the charges uniform, not any variations in the atmosphere, however sudden and determinate, caused the slightest alteration. The metal was the same, the cinder equally smooth and clear in damp and stormy, as in dry and frosty weather. The regularly maintained action of the battery, counteracting all excess in the relative condition of the two electricities, preserved an equilibrium in the working of the furnace which delivered out its contents in one unchanged state and quality. In the ordinary process also, it was by no means rare to find Nos. 2, 3 and 4, together in the same bed, from the same tapping; owing to a derangement in the furnace, and an unequal distribution of carbon; while the electrised charges were alike in every particle, without mixture or alloy. This last circumstance was most satisfactorily shown, continues Mr. W., while I was operating at Dowlais during the early part of the month of December, 1844. On this occasion there were four furnaces, each working according to a different arrangement, and each fed by a distinct species of ore. The one making white or inferior metal, was selected for the experiment. The charges were ordered to be kept regular night and day. Although apparently indifferent, I was not inattentive, and felt confident of the result. At the end of twenty-four hours a change was visible. At first, a dull white, then a mottled, and lastly a No. 3 gray pig made its appearance, and this, he it remembered, from a furnace arranged and charged for white or inferior metal. There was the fact, evident, undeniable. But it was destined not to be long in view. It could not be disputed, but it might be counteracted. And so it was. No sooner was the phenomena espied by a certain official of the establishment, than an order was issued to alter the charge. This order was carried out in such a manner as to leave out all consideration of regularity or system in the feeding or working of the furnace. I myself saw the feed-board, or diary, and I was astonished at the utter recklessness which it exhibited. However, the facts sought after, were found and confirmed, and I did not think it worth while to enter into a discussion of motives, as it would neither remedy the matter, nor benefit science."

Another and most valuable boon conferred by Mr. Wall's process, is an increase in the product of metal from any given charge of the furnace, as compared with the ordinary mode of manufacture. An effect, as simple in its cause, as beneficial in its consequences.

The action of the battery, penetrating with the most active and subtle influence the whole melting mass, arrests, by dislodging it from its natural combination in the ore state, every particle of metallic substance; the molecules rush to each other from the exaltation of their affinities, and are thus prevented from running off in the form of a peroxide. As much as six per cent. of metal has been discovered by analysis in the slag or refuse from an ordinary worked furnace. This effect was particularly noticed during the experiments at Milton Iron Works. In the course of a few tappings, after the application of the battery, a difference was observed in the relative qualities of the metal and slag. The former appeared better, and the latter clearer. This circumstance was soon remarked by the furnace servers, as well as the manager, and at the end of a week, the metal product of the furnace was found to have increased, without any alteration in the charges, in the proportion of seven to nearly nine.

But there is yet another purpose more novel and interesting than any hitherto mentioned, to which Mr. Wall's process has been successfully applied.

Whoever has visited any of the great iron establishments, cannot fail to have observed the enormous heaps of refuse surrounding the furnaces, and in some places almost precluding all approach or passage to the various departments of the works. This hitherto useless mass, Mr. Wall has restored to notice, has drawn forth its neglected worth, and by the magic agency of electricity, has transformed an unsightly encumbrance into a valuable acquisition.

The first experiment took place at Downais on the 12th of November, 1844. The authorities directing that vast establishment, had witnessed and repeatedly been compelled to acknowledge the beneficial effects of the process in the more important branches of the manufacture of iron; but they could not be induced to adopt it, or reap the advantages to be derived from the use of it. However, on such a proposal, which seems to have been selected from its supposed impracticability, being accepted by Mr. Wall, they appear to have been somewhat puzzled; but doubtless relying on the futility of the experiments, they positively declared, that, if he succeeded in rendering the refuse available for any purpose, the battery should be immediately adopted throughout the establishment.

**Experiment.**—To two-thirds of slag or refuse was added one-third of No. 3 pig iron, in the puddling furnace. When the charge had reached a semi-fluid state, eight pairs of a Seeley's battery, arranged according to the principle of intensity, were applied by means of two wires attached to the pole rods of the battery. To one of the rods was fastened a non-conducting handle, which projected thro' the rake hole of the furnace, and was occasionally put in motion. The other was passed through the roof, so as to dip into the melting mass. The battery was kept in action about half an hour, or until the metal began to ball, when the electric process ceased.—The metal was found to have puddled, and

balling in every way similar to their best samples, and in the same space of time, while it appeared more glossy, smoother and freer from defect. The loss on the charge, which was of four hundred weight, was twenty four lbs. The iron was rolled into merchant bars, and also wrought into horse shoes, etc., without showing the least flaw or crack.

"I now thought," says Mr. Wall, "that the time of experiment was over, and that the object of my solicitude was attained, but I was mistaken. The two managers were confined to their houses by sickness. Accordingly, specimens of the metal were forwarded to them. The messenger, on his return, stated that the result was very satisfactory; but that they wished the process to be further proved on the refuse cinder alone, without any admixture of pig metal." Agreeable to this message, a second experiment was made, nothing but the *pure unalloyed* refuse was put into the charge, which was the same in quantity as on the previous trial. In this case the charge was fifteen minutes longer puddling; and required more time to boil before balling, which was slower, though equally good. There was no other difference observable during the operation. On its being drawn, the following were the results: The loss on the 400 weight was found to be 48 lbs. "The metal rolled," says Mr. Wall, "like a lump of butter;" it cleared well of its cinder when passing the rollers, and came out perfect bar iron. A fine regular surface glistened beneath the thin scale with which it was covered. It was ball-furnaced, re-rolled into merchant bar, and afterwards worked up like the former, into horse shoes, without flaw or crack, though punched cold. On being compared with the ordinary merchant bar, it was pronounced to be but slightly inferior in strength, with the advantage of a smoother and more perfect surface. Such were the results of this novel experiment.

Whatever may be said of the wisdom of referring the adoption or rejection of the process to the issue of such a trial, is of little consequence. The challenge was accepted, and the bold attempt achieved. From a mass of rubbish, hitherto regarded as fit only for repairing roads, or for ships' ballast, had been extracted metal adequate to all the ordinary purposes to which the merchant bar was applied. Honest prejudice, however strong, would have given way, and generously acknowledged its defeat. But pride is invincible, and jealousy bids defiance to proof. In vain are the well meant intentions of patriotic individuals clearly shown; or the advantages of a discovery obvious and incontestible. In vain is the credit of introducing a superior article into the market held out as a motive; or the frequent and dreadful evils which will be warded off, portrayed. The vilest trash may be palmed on a confiding public; life and limb may be in hourly jeopardy; boilers may burst; vessels blown up in high air; and the wail of victims may be borne across the waters; it will beat against the "dull, cold" ear of selfishness as unavailing as the surge against the rocky shore.

But enough. Although reason was con-

vinced, and facts brought out which, however astounding, prejudice was compelled to admit the battle was lost. Downais was to be freed from the intruder, and his system scattered to the winds.\*

In conclusion, we trust that the facts which have been recorded in these few pages, with the testimonies adduced, will have sufficiently established the truth of our leading assertion. To characterize an invention, as forming an epoch in the annals of science, may appear a bold expression; but when we consider the vast importance of the primary object of its operations, and the well authenticated phenomena we have detailed, the expression will hardly be deemed unwarranted.

"On the employment and application of iron, is founded every important step which marks the progress of the human race from barbarism to civilization. The difficulties which its reduction from a state of ore presents, the variety of conditions necessary for its being wrought into useful forms, and the pre-eminent advantages it possesses for the construction equally of the simplest tool and the most complex machine; all combine to excite the energies of a people, and impel them to mental activity and civilization. As gold and jewels are hence the type of ignorance and barbaric pomp, so iron is the greatest material source of intelligence and industry." An invention, therefore, to facilitate and simplify the manufacture of so precious an article, which augments its product, and improves its quality, cannot be too highly rated. Now, these effects we hesitate not to claim on behalf of Mr. Wall's patent. We have not hazarded bare assertions, nor assumed doubtful propositions, but have merely stated facts, with their respective dates. To have expected that it would have been adopted without demur, or escape opposition, would have been illusory, and have betrayed an ignorance of the records of science and of the history of social progress. Mr. Cort, on introducing his great improvement, was assailed with the bitterest acrimony, and his process of puddling was scouted as a chimera. Still, *magna est veritas*—whatever is founded upon just principles must eventually prevail, and all opposition, whether from ignorance or prejudice, from motives of jealousy or self-

\* Besides these adverse circumstances above mentioned, there were many others inconsistent with a fair trial. The puddling furnaces assigned to Mr. Wall for his experiments, were constructed for white metal, which balls without boiling. The electrified metal boils thin and swells much. The consequence was, that as it was worked in such furnaces, it ran out at the rake-hole, and over or through the bridges. This waste proceeded to such a degree, that the workmen were constantly piling up large blocks of lime stone, to prevent the metal totally running out. Now lime, as it is well known, is calculated to deteriorate the quality of iron, but failed in this instance doing so, as the metal, in puddled bar, was afterwards made into excellent rails, without the admixture of any merchant bar—a thing impracticable with their own puddled bar; as merchant bar, in such a case, to the extent of two-fifths, is indispensable. In addition to the above, the whole body of puddlers were in a state of hostility, from the imaginary fears that the process would reduce their labor. Indeed a considerable number of first-rate hands actually gave notice to quit if the process were continued.



interest, will serve only like the crucible to enhance its value, by proving the genuineness of its claims.\*

(To be Continued.)

#### Licking and Lexington Railway.

We are glad to have noticed some indications of activity in Kentucky, to obtain the means for constructing the railway from the mouth of the Licking to Lexington. Let the people along the line of the proposed road engage in this subject, as intelligent and able planters should do, and the work will be done at an early day. If they manifest no desire for the road, they need hardly look to Cincinnati for aid. The Lexington observer sees things in their proper light. It says:

No one can for a moment doubt its importance, who will take the trouble to look at the map of the U. States, and see what is doing elsewhere in this mode of improvement, which is destined to be the principal mode of connection and conveyance between the agricultural and commercial regions of every country on earth—bringing the surplus products of labor quickly and cheaply to the prominent places of demand and consumption.

With this road completed, our hemp and other heavy articles could be transported at half the present cost, via the Cincinnati and Erie railroad, as contemplated to be continued to the great northern markets; and every dollar thus saved would go into the pockets of our farmers and factors. And when Louisville shall have met us at Frankfort with her great work, we shall have the southern markets also brought to our doors, and an uninterrupted tide of prosperity will place our own beautiful and healthy city in its destined high position as to population and wealth.

\* It may perhaps have been expected, that in the course of the remarks on the experiments above detailed, allusion would have been made to some particular department of art, where the advantages derivable from the patent would be especially important and conspicuous. Such an idea did indeed occur; but, on a moment's reflection, it was deemed unnecessary to offer any suggestion. In a country, where the spirit of industry is so active, little more is required than to show the practicability of an improvement, to ensure its immediate adoption. There is, however, one branch which, from its rational interest, deserves especial notice. In the cast metal used in the ordnance department, Mr. Wall's patent will, by the expulsion of all deteriorating alloys, give a tenacity and consequent security hitherto unobtainable. That cumbersome, so unwieldy in pieces of large calibre, may be reduced at least one-seventh without in any degree impairing their strength or durability. Metal which has undergone the electrifying process, turns like wrought iron, and its superiority of fibrous texture to common cast, is equal to what wrought iron possesses over steel. This was fully proved during an experiment at Downais. A small battery, consisting of six pairs, five by three and a half inches, was applied to a mass of iron, from which was afterwards formed a cast roller for the rolling mill. The quantity was about sixteen hundred weight. It answered beyond expectation; and the machine has been in constant operation for upwards of twelve months, and it is as efficient as on the day it was first set to work. This test will be deemed satisfactory, when the great uncertainty respecting those machines is considered. Little or no reliance could be placed on their strength; scarcely a day passed without one or more suddenly dropping asunder, or becoming unserviceable. I have a letter now lying before me, from a friend of the patentee's, residing at Downais, giving full details of the circumstance. But after so many testimonies on the subject, it is hardly worth while to give any more extracts.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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#### AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, May 15, 1847.

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Masonry and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,

T. FOLLETT, President.

Office of the C. & C. R. R. Co., }  
Burlington, Vt., April 29, 1847. } 3:20

#### Wall's Improvements in the Manufacture of Iron and Other Metals—Continued.

We continue the publication of this highly interesting and valuable pamphlet, in this number of the Journal. Several inquiries have been made for the pamphlet, since the publication of our last number. We will therefore say that it will be continued in the Journal, until the whole is published; and thus the subscribers to the Journal will be put in possession of what we deem exceedingly valuable information, upon a very important subject.

#### Scientific Prophecy.

Newton expresses his deliberate opinion that cohesion, light, heat, electricity, and the communication of the brain with the muscles, are all to be referred to one and the same cause—an ether or spiritus which pervades all bodies. We might smile at such an opinion from many quarters; and had Newton been only the author of the "Principia," we might, says the Dublin Review, perhaps think his head a little exalted by the excitement attending the close of an arduous labor, (though, in truth, the scholium, from which the above is extracted, does not appear in the first edition;) but when we consider his prediction, that the diamond would be found to be combustible, that the earth has between five and six times its weight of water, and others which have turned out correct, we feel something like a presentiment that the opinion just cited, may in some degree share the same destiny.

#### Boston, Concord and Montreal Railroad.

The Boston Traveller states that of the \$240,000 new subscriptions to this road, about \$200,000 were taken in New Hampshire, and it is confidently ex-

pected that the road to Sanbornston, 18 miles from Concord, will be opened by the 1st of October. The remainder of the road to Plymouth, not already contracted for, will be put under contract immediately.

#### Champlain and Connecticut River Railroad.

Contractors, and others interested in the construction of railroads, will find another field for their enterprise by referring to the advertisement of the above named road in this number of the Journal. We are much pleased to learn that this work is progressing so rapidly. The present indications are only in accordance with our own early opinions and expressions in relation to it, viz: that the trade of western Vermont is of too much importance to the people of Boston, for them to yield it without a much greater effort than is requisite to ensure the construction of this road. Boston will not rest in her efforts, in a north and northwesterly direction, until there are at least three—or four lines of railroad reaching Canada line, or Lake Champlain—and two to Montreal, and one to Ogdensburg, but no one of them will, in our opinion, be more useful to community, or profitable to the stockholders than this.

#### Passumpsic River Railroad.

The St. Johnsbury "Caledonian" has the following remarks upon the cheering prospects of the Connecticut and Passumpsic Rivers railroad. The Montreal road, which is spoken of below, is also in good prospect of success, and active operations will commence upon the line this Spring. The Caledonian says:

"We are glad to see the official development of the intentions of the Board of Directors of the Passumpsic and Connecticut Rivers railroad company—such as appears in the advertisement for contracting thirty-four miles, in addition to the section contracted for some time since, and upon a portion of which the grading has been completed. The intention is, we understand, to have some forty miles of the road completed, and the cars upon it in October, 1848. In the mean time, other portions of the route will be put into such a state of forwardness as circumstances and the funds of the company may warrant.

"The good success of our Canadian friends in regard to opening a road from Montreal to the line, will, we doubt not, stimulate the friends of the Passumpsic road, to use all necessary exertions in order to be ready to 'hitch on' at the earliest day possible.

"The proposals advertised, embrace thirty-four miles, which with the sections heretofore contracted, include the entire division between the mouth of White river and Wells river, forty miles.

"At a recent meeting of the Board of Directors, it was decided to proceed with all reasonable despatch with the construction of this portion of the road, and there is no reason to doubt but the cars will run to Wells river in the course of next year.

"This part of the road must do a heavy business immediately on its completion—traversing, as it does, the best portion of the valley of the Connecticut river north of Greenfield, Mass. There is not, in any part of New England, a more flourishing farming district, nor a greater diffusion of water power. The villages and towns along the line indicate a profusion of wealth and prosperity unusual for the country.

"In completing the locating survey, the line is found much more favorable than was indicated by the preliminary survey, and no grade upon this forty miles will exceed twenty-six feet per mile.

"It is understood that arrangements have been made for a connection and a general depot of the

three roads—the Northern, the Passumpsic, and the Vermont Central—at the mouth of White river.”

The Vermont lines will be opened early next season to Burlington, and thus establish an important steam communication with Montreal, but they cannot expect to command at that city the great exports of bread stuffs from the west to Europe.

Judge Hopkins, in his able report, informs us that “the navigation of the St. Lawrence below Ogdensburg is dangerous and very expensive, and the freight on a barrel of flour from Ogdensburg to Montreal is thirty cents, and much of every season higher, besides extravagant insurance.”

As has already been shown, adds the Courier, the entire outlay for transportation to Boston from Ogdensburg will be but 21½ cents per barrel, or one-half the proposed charge of 43 cents per barrel, of course no line terminating at Montreal can enter into successful competition for the bread stuffs. The Canadian trade will be reached at Montreal; the great trade of the west can be effectually commanded only at Ogdensburg.

#### New York and Boston Direct Railroad.

We cheerfully give place to the following communication, and hope to see the work early commenced on the line.

For the American Railroad Journal.

Of the four applications for the extension of this line through Massachusetts, the Committee of the Legislature reported in favor of the one connecting with the Boston and Providence road, 11 miles from Boston, and the bill presented by them has passed the house, and has also passed the senate, and ere this has undoubtedly received the governor's signature, and become a law. This is the shortest of the four lines prayed for, and of course well suited for the “air line” road.

The Legislature of Rhode Island holds its session in June, when it is believed that the only remaining portion of the line, for which charters are needed, viz: 18 miles through Rhode Island, will be granted. Upon the route thus chartered, the distance from N. York to Boston, by actual survey, is 210 miles;—which distance, by further improvements in the line, will probably be reduced to 207 miles, being from 24 to 27 miles shorter than the line by way of Springfield. Means to complete the portion between New York and New Haven are already provided. From New Haven to the east line of Connecticut, subscriptions to the capital stock, to a considerable amount, have already been made; and now that it is deemed certain that the whole line will be chartered, the total amount required will doubtless soon be obtained.

Past experience shows that the most of the travel between Boston and New York will take the shortest and quickest route, to avoid the loss of time and casualties that attend the navigation of the Sound.

It is proposed to build the direct route in such a manner as to ensure a speed from five to ten miles more per hour than can be obtained on any existing road. This advantage, combined with the saving in distance, will give it much the larger portion of the through travel between New York and Boston. The revenue from this source is however not needed to sustain the road. The way business, it has been ascertained, is ample for this purpose. The population upon the portion between New Haven and Boston being greater per mile than upon the line via Springfield.

The roads upon the latter route are doing a good business, the great portion of which is local, or way travel, and freight, and will therefore continue to pay good dividends, even after the direct route

is constructed. This is the opinion of the friends of those roads, as is evident from the expense which is being incurred to render the road more perfect between New Haven and Hartford, and from the movement which the Western railroad company is making towards laying a second track upon their road, between Springfield and Worcester. The corporation of which we are speaking, have thus far stoutly opposed the direct route. Public opinion, however, is settling strongly in favor of the latter. It is seen that it will not interfere with the proper business of any other road, and in addition to the reasons assigned above, of a saving in time, etc., it is becoming apparent that a line of road like that from Boston to Springfield, which is designed mainly for the transportation of freight, and as a means of communication westward towards Albany and Buffalo, cannot, without great interference, danger and delay, be made part of a main line of communication between Boston and New York.

In the charter obtained from the State of Connecticut, for the direct route, the right is given to bridge the Connecticut river at Middletown. This act has been asserted to be unconstitutional, the State not having the right to authorize the construction of a bridge over navigable waters, but a recent decision of the supreme court of the United States, puts this question at rest. It is declared that the States possess the same power as before the constitution was formed. Railways, as a means of intercommunication, are more important, in most cases, than the inland navigation of the country. Hence the same reason, which for years past has rendered the preservation of the navigation of our inland waters an object of peculiar care, is now applicable in a greater degree to railways. Fortunately, the improvements in draw bridges are such, that no material obstruction is caused to the navigation of a stream in crossing it with a railway.

#### Ogdensburg and Lake Champlain Road.

The Boston Courier learns with pleasure that Mr. James Hayward, the engineer of this route, has succeeded in finding a very cheap, direct and feasible route for this important line of railroad. The line which he recommends, and the directors have adopted, commences at Ogdensburg, and terminates at Rouse's Point, at the outlet of Lake Champlain. A line already chartered, connects Rouse's Point with the Central and Rutland railroads at Burlington, and thus a continuous line, unbroken by a ferry will be opened between Ogdensburg and Boston.

By extending the St. Johns and Laprairie railroad 20 miles more from St. John's to Rouse's Point, a continuous railroad will also be opened between Montreal and Ogdensburg, and Montreal and Boston.

The Vermont and Cheshire lines will be opened next year, and so easy are the routes from Rouse's Point to Montreal, and from the same to Ogdensburg, that if the stock unsubscribed be taken this Spring, we may have next year a continuous road to both Ogdensburg and Montreal; and after breakfasting in Boston, reach either of them by a fast train the same evening.

The Ogdensburg railroad, adds the Courier, presents many attractions to the capitalist.

1st. It is unusually cheap, costing with a 60 lb. rail, but \$19,000 a mile.

2d. The western half has no curves less than ten thousand feet radius, and the eastern half none less than five thousand feet.

3d. It is nearly an air line; of one hundred and fifteen miles, the entire length, one hundred are air line.

4th. It has no ascending grade from the west that exceeds 26 feet, and none ascending from the east, exceeding 39 feet to the mile.

5th. The despatch with which it may be constructed, and the favorable opportunity which presents itself to avail of the flood of emigrants now pressing into the country, to construct the line at low rates.

#### Receipts on Thirty-two English Railways.

The following statement, in continuation, shows an increase of \$54,223 85—over the preceding two weeks; and an aggregate of \$1,387,125 63.

RAILWAYS.	Length in miles.	Week ending March.	Amount.			Week ending March.	Amount.		
			£	s.	d.		£	s.	d.
Arbroath and Forfar.....	15	13	218	8	4	20	257	11	6
Chester and Birkenhead.....	14½	13	497	15	2	19	501	5	5
Dublin and Drogheda.....	31	11	701	12	0	18	699	11	9
Dublin and Kingstown.....	6	16	610	14	2	23	590	9	3
Dundee and Arbroath.....	16½	14	272	12	7	21	312	9	11
East Lancashire.....	28	13	740	10	3	20	845	9	7
Eastern Counties.....	126	14	8,716	10	3	21	8,892	4	9
Edinburg and Glasgow.....	46	13	3,327	7	10	20	3,243	3	8
Glasgow, Paisley and Ayrshire.....	51	13	2,339	2	3	20	2,126	6	8
Glasgow, Paisley and Greenock.....	22½	13	952	8	5	20	950	2	3
Great Western.....	221½	14	15,311	13	1	21	16,254	4	2
Great Southern and Western—Ireland.....	56½	13	1,018	0	10	20	1,200	11	7
London and North Western.....	333	13	34,960	9	10	20	35,887	17	10
London and South Western.....	92½	14	5,977	5	3	21	6,336	19	5
London, Brighton and South Coast.....	95½	13	5,304	11	2	20	5,756	3	10
London and Blackwall.....	31	14	927	9	5	21	859	14	3
Midland, Bristol and Birmingham, Leeds and Bradford, Nottingham and Lincoln—4 roads.....	268½	13	16,990	12	4	20	17,414	10	3
Manchester and Leeds—including Bolton and Preston District.....	94½	13	7,665	19	0	20	7,713	7	9
Manchester, Sheffield and Lincolnshire.....	40	13	1,888	5	9	20	1,947	18	3
Newcastle and Berwick.....	7	13	640	0	1	20	725	13	7
Newcastle and Carlisle.....	61	13	2,094	19	9	20	2,151	16	6
Norfolk.....	58	14	1,530	17	3	21	1,552	0	6
North British—including Dalkieth Branch.....	72½	13	1,378	12	4	20	1,344	11	10
Preston and Wyre.....	19	13	547	14	4	20	560	16	4
South Eastern.....	143	13	5,650	13	3	20	6,844	16	0
South Devon.....	20	12	397	2	3	19	478	16	0
Shrewsbury and Chester.....	15	12	331	5	11	19	324	10	1
Taff Vale.....	30	13	1,294	5	2	20	1,474	6	4
Ulster.....	25	14	721	19	2	21	762	7	6
York and Newcastle.....	107	13	7,191	12	1	20	6,618	19	1
York and North Midland—with Leeds and Selby.....	155	13	5,699	14	6	20	5,790	13	2
Paris and Rouen.....	84	15	5,517	0	0	22	5,807	0	0
<b>Total.....</b>	<b>3187½</b>		<b>£140,346</b>	<b>13</b>	<b>0</b>		<b>£145,249</b>	<b>9</b>	<b>5</b>
			<b>\$679,278</b>	<b>09</b>			<b>\$707,847</b>	<b>54</b>	



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Nashua and Lowell Railroad Co, under the Act of April 16, 1846.

Capital stock, [was originally \$380,000: was increased to lay a second track, in 1845, to].....	\$500,000
Increase of capital since last report.....	
Capital paid in, per last report.....	500,000
Capital paid in since last report.....	
Total amount of capital stock paid in.....	500,000
Funded debt, per last report.....	
Funded debt paid since last report.....	
Funded debt, increase of, since last report.....	
Total present amount of funded debt.....	
Floating debt, per last report.....	
Floating debt paid since last report.....	
Floating debt, increase of since last report.....	
Total present amount of floating debt.....	
Total present amount of funded and floating debt..	
Average rate of interest per annum on do.....	

The corporation is not in debt.

## COST OF ROAD AND EQUIPMENT.

For graduation and masonry, per last report [upon this point].....	82,917 68
For graduation and masonry, paid during the year, [for a second track not completed at our last annual report].....	12,534 19
Total amount expended for graduation and masonry [including new second track].....	\$93,451 87
For bridges, per last report, [included in the item for superstructure; the accounts not having been kept separately, it is difficult now to separate them]	
For bridges, paid during the past year.....	
Total amount expended for bridges.....	
For superstructure, including iron, per last report, [this includes bridges].....	126,704 04
For superstructure, including iron, paid during the past year, [including bridging for new track]	107,294 31
Total amount expended for superstructure, including iron.....	233,998 35
For stations, buildings and fixtures, as per last report.....	
For stations, buildings and fixtures, paid during the past year, [carried to miscellaneous expense acc't]	
Total amount expended for stations, buildings and fixtures.....	23,757 53
For land, land-damages and fences, per last report.	
For land, land-damages and fences, paid during the past year.....	
Total amount expended for land, land-damages and fences.....	79,074 15
For locomotives, per last report.....	
For locomotives, paid during the past year.....	
Total amount expended for locomotives, [except what has been carried to depreciation account]..	91,759 69
For passenger and baggage cars, per last report....	
For passenger and baggage cars, paid during the past year.....	
Total amount expended for passenger and baggage cars.....	5,146 71
For merchandize cars, per last report.....	
For merchandize cars, paid during the past year..	
Total amount expended for merchandize cars.....	90,101 09
For engineering and other expenses, per last report.	20,539 11
For engineering and other expenses, paid during the past year.....	171 50
Total amount expended for engineering and other expenses.....	20,710 61
Total cost of road and equipment.....	500,000 00

## CHARACTERISTICS OF ROAD.

Length of road.....	75,389 2 feet.
Length of single track.....	6,329 feet.
Length of double track.....	69,060 2 feet.
Length of branches owned by the company, stating whether they have a single or double track.....	No branch owned by Co.
Weight of rail per yard in main road.....	56 lbs.
Weight of rail per yard in branch roads.....	
Maximum grade, with its length in main road.....	19.7 ft. per mile; 4,133 ft.
Maximum grade, with its length in branch roads..	
Total rise and fall in main road.....	73.5 feet.
Total rise and fall in branch roads.....	
Shortest radius of curvature, with length of curve in main road.....	636 feet, 100 feet long.
Shortest radius of curvature, with length of curve in branch roads.....	
Total degrees of curvature in main road.....	770 deg.
Total degrees of curvature in branch roads.....	
Total length of straight line in main road.....	6.73 miles.
Total length of straight lines in branches.....	
Aggregate length of truss bridges.....	400 feet.
Whole length of road unfinished on both sides....	

## DOINGS DURING THE YEAR.

Miles run by passenger trains.....	28,515
Miles run by freight trains.....	18,615

Miles run by other trains.....	1,740
Total miles run.....	48,870
Number of passengers carried in the cars.....	192,272
Number of passengers carried one mile.....	192,272 = 2,678,713
Number of tons of merchandize carried in the cars.	126,502 1968-2000
Number of tons of merchandize carried one mile..	126,502 1968-2000 = 1,835,129 1040-2000
Number of passengers carried one mile, to and from other roads.....	158,472 = 2,230,838
Number of tons carried one mile, to and from other roads.....	123,387 168-2000 = 1,762,935
Average rate of speed adopted for passenger trains, including stops.....	22 miles.
Average rate of speed adopted for freight trains, including stops.....	13 miles.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	65,108 75-2000 = 976,631
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile.....	122,332 42-2000 = 1,984,966 30

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron: [Including 1655 feet wood construction at Lowell]	\$22,701 12
For repairs of truss bridges.....	180 72
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-men.....	913 00
For removing ice and snow.....	140 00
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....	1,005 73
Total for maintenance of way.....	24,940 57
MOTIVE POWER.	
For repairs of locomotives.....	2,061 22
For new locomotives to cover depreciation, [none within the past year; but in 1844, the engine Lion was purchased, and carried to depreciation acc't]	6,450 00
For repairs of passenger cars.....	2,396 76
For new passenger cars to cover depreciation.....	None within the last year.
For repairs of merchandize cars.....	4,901 86
For new merchandize cars to cover depreciation...	637 98
For repairs of gravel and other cars.....	35 62
Total for maintenance of motive power.....	10,064 44

## MISCELLANEOUS.

For fuel and oil.....	8,308 57
For salaries, wages and incidental expenses, chargeable to passenger department.....	6,028 55
For salaries, wages and incidental expenses, chargeable to freight department.....	12,402 32
For gratuities and damages.....	1,150 00
For taxes and insurance.....	1,910 57
For ferries.....	
For repairs of station building, aqueducts, fixtures, furniture.....	3,153 28
For interest.....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company.....	Nothing.
For amount paid other companies as rent for use of their roads, specifying each company.....	Nothing.
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	4,136 13

## INCOME DURING THE YEAR.

## For Passengers:

1. On the main road exclusively, including branch owned by company.....	27,982 11
2. To and from other roads, specifying what: [Concord]....	31,110 37

## For Freight:

1. On main road and branches owned by company.	32,064 50
2. To and from other connecting roads:	31,529 75
U. S. mails, \$2,249 20. Rents, \$6,12 17. Interest and miscellaneous, \$1,928 45.....	4,789 82
Total income.....	127,496 55
Net earnings after deducting expenses.....	57,217 17

## DIVIDENDS.

Surplus not divided.....	7,217 17
Surplus last year.....	5,448 95
Total surplus.....	12,666 12

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges.....	
Buildings.....	
Engines and cars.....	

DANIEL ABBOTT,  
CHARLES F. GOVE,  
THOMAS B. WALES,  
JESSE BOWERS,

Directors of the Nashua  
& Lowell Railroad.

**Baltimore and Pittsburgh.**

The Pittsburg Gazette, of Wednesday last, contains the following official report of the proceedings of the Stockholders of the Pittsburg and Connellsville railroad company, held on the 27th ult.

**STOCKHOLDER'S MEETING.**

*Pittsburg and Connellsville R. R. Co.,*  
Pittsburg, April 27th, 1847. }

In pursuance of adjournment, the Stockholders of the Pittsburg and Connellsville railroad company, met this day at 3 o'clock P. M., at Philo Hall, and were called to order by Wm. Eichbaum, Chairman.

Wm. M. Darlington was appointed Secretary.

The proceedings of a public meeting of the citizens of Baltimore, held in that city on the 3d inst., and of a meeting of the Stockholders of the Baltimore and Ohio railroad company, held on the 5th inst., were then read for the information of the meeting.

Neville B. Craig, Esq., from the committee on the subject of the Baltimore connection, presented the following report and resolutions which were unanimously adopted:

The committee appointed at the last meeting of the stockholders, have had under consideration the course of action proper to be adopted at this time; and although entirely conscious of the great impatience of many of their fellow citizens, and of their eager desire to embark in some other scheme of improvement, and to abandon one which hitherto has been productive only of repeated delays and disappointments, feel disposed to make one effort more to complete an arrangement by which the very liberal charter under which we act shall be made to contribute to the prosperity, not only of the cities of Pittsburg and Baltimore, but of the intervening country.

In arriving at this conclusion the committee frankly acknowledge that it is influenced as much by the kind and friendly feeling manifested by the citizens of Baltimore at their late meeting, and by a respect for the wishes and interests of those of our own company who reside along the route of the proposed improvement, as by their own judgment on the subject.

The committee feel, however, that too much time has already been spent in fruitless negotiations, and that the subject now demands a speedy and final decision.

The committee, therefore, offers the following resolutions:

Resolved, That the Stockholders of the Pittsburg and Connellsville railroad company, in consideration of the very friendly disposition manifested towards our proposed work by the merchants and other citizens of Baltimore, and especially from a regard for the interests of those of our own number residing along the Youghiogany river, who look upon the work as the last promise of a participation in the benefits of the great scheme of internal improvements, are disposed to make one effort more to complete an arrangement with the Baltimore and Ohio railroad company. Therefore,

Resolved, That the whole subject be referred back to the Directors of this company,

with full power to act in relation to this whole matter, and to report the result of any correspondence or inferences which they or any committee appointed by them may hold with any other persons, to a meeting of the stockholders of this company on the 19th day of May next.

Resolved, That when this meeting adjourn it will adjourn to meet again on Wednesday, the 19th day of May, 1847, at 3 o'clock P. M. to take into consideration the report which will be made by the directors, and also to consider the law passed at the last session of the legislature in relation to this company, and to adopt such measures as may be determined to be expedient and proper.

A. W. Loomis, Esq., was excused from serving on the committee on the subject of a western railroad, and Joshua Hanna was, on motion, substituted in his place as chairman, and Wm. Ebbs was appointed a member of said committee.

The Hon. J. C. Plumer, of Westmoreland county, presented the following proceedings of a meeting held at West Newton, which were, on motion, ordered to be published with the proceeding of this meeting.

On motion the meeting adjourned.

WM. EICHBAUM, Chairman.

WM. M. DARLINGTON, Sec'y.

In pursuance of public notice, a meeting of the Stockholders in the Pittsburg and Connellsville railroad company, and of the citizens of the surrounding country generally, was held at the schoolhouse in the borough of West Newton, on Thursday, the 22d of April, 1847, to deliberate on, and express their sentiments respecting a connection of said company with the Baltimore and Ohio railroad company. The meeting was called to order by J. C. Hanna, Esq. nominating Col. J. B. Oliver to the chair, and D. F. McConaughy, Secretary.

The object of the meeting being made known, several addresses were delivered by gentlemen present, when, on motion, a committee of three, consisting of Abel J. C. Plumer, Major James Gardiner and Amos Biggs, Esq., were appointed by the chair to draft resolutions expressive of the views of the meeting.

The committee, after having retired a short time, reported the following:

Whereas, The Baltimore and Ohio railroad company have declared their determination to carry their road to a southern terminus on the Ohio river, but have expressed a willingness to aid liberally in making a branch to the city of Pittsburg—and, whereas, a connection of the cities of Pittsburg and Baltimore by railroad is most desirable, therefore,

Resolved, As the sense of the Stockholders of the Pittsburg and Connellsville railroad company, residing in West Newton and vicinity, a difference of opinions as to the route or location of the Pittsburg and Connellsville railroad to connect with the Baltimore and Ohio railroad company, and the city of Baltimore, ought not to prevent the construction of said road with the least possible delay, and we advise a compromise of all difficulties heretofore raised on the subject.

Resolved, That we approve of suggestions thrown out by the Baltimore and Ohio railroad company, as to the subscription of stock sufficient to ensure the completion of said road; and thus make a connection between the cities of Pittsburg and Baltimore, by railroad, complete. And we pledge ourselves as Stockholders of the Pittsburg and Connellsville railroad company, to raise by further subscription, our proportion of seven hundred and fifty thousand dollars. And we are of opinion that this company ought at once to guarantee the aforesaid sum.

Resolved, As the sense of this meeting, that the Board of Managers of the Pittsburg and Connellsville railroad company ought to enter into further negotiation with the Baltimore and Ohio railroad company, and the city of Baltimore, on the aforesaid subject, with a determination to overlook the past as to route, and harmonize all differences, that the road may be constructed as soon as possible.

Which, being read, were unanimously adopted by the meeting. And, on motion, Abel J. C. Plumer, Major James Gardiner and Randle Johnson were appointed a committee to lay the proceedings of this meeting before the Stockholders of the Pittsburg and Connellsville railroad company, who are to assemble in the city of Pittsburg on Tuesday, the 27th inst., and request their adoption.

J. B. OLIVER, Chairman.

T. W. McCONAUGHEY, Sec'y.

**Triumph of American Mechanics.****AN INTERESTING COMMUNICATION.**

The Baltimore Sun has been furnished with the annexed highly interesting letter, which we give to our readers entire—believing that it will be perused with the highest satisfaction by all who are interested in the advancement of American mechanics.

St. PETERSBURG, March 20, 1847.

*Visit of the Emperor Nicholas to the Workshops of Messrs. Harrison, Winans and Eastwick.*

On the 10th of this month, his majesty the Emperor Nicholas I, visited the establishment of the American contractors, Messrs. Harrison, Winans & Eastwick, at Alexandroffsky, six miles from St. Petersburg, known as the "Alexandroffsky Head Mechanical Works of the St. Petersburg and Moscow Railway," and where is being constructed the machinery for the railway above mentioned.

His majesty had fixed 12 o'clock for leaving the railway station at St. Petersburg, and punctual to the hour arrived at the appointed place, and after spending a few moments in examining the locomotive at the head of the train, started for the workshops at Alexandroffsky, where the train arrived in about eight minutes. His majesty was accompanied by his imperial highness, the Grand Duke Alexander Nikolaevitch, the heir to the throne; his imperial highness, the Grand Duke Constantine Nikolaevitch, the second son of the Emperor; his highness the Duke of Leuchtenberg, son-in-law of the Emperor; field marshal Prince Paskevitch d'Erwan, viceroy of Poland; his excellency Prince Menschikoff, minister of marine, and head



admiral of the Russian navy; his excellency Count Chernicheff, minister of war; his excellency Count Orloff, minister of police; his excellency Count Keimichel, minister of way, communications and public buildings; his excellency Count Disalleff, minister of the imperial domains; his excellency Gen. Rockasoffsky; Admiral Lufke; the counselor of state; Gen. Fischer, director of the department of railways; Col. Kraft, director of the southern division of the St. Petersburg and Moscow railway; Col. Melnikoff, director of the northern division of the St. Petersburg and Moscow railway, and Major G. W. Whistler, engineer of the St. Petersburg and Moscow railway.

His majesty was received at the door of the works by the contractors, and after the usual presentations, proceeded to examine the works, entering at the south door of the great machine shop. The distinguished visitors first went to the upper floor, where all the small work for the locomotives are prepared for the erecting shop. His majesty examined everything very closely in this part of the works, making many inquiries of the contractors, who explained all the various operations that were going on. His majesty expressed himself much pleased with the beauty and finish of the parts of the locomotives. He much admired the very beautiful and efficient tools which the contractors have adapted to the various branches of the works, and frequently called the attention of his ministers to them. His majesty, after making the entire circuit of this room, next visited the lower floor, where the cylinders, driving wheels, frames, and all other heavy parts of the locomotive are prepared; here the same minute inspection was also made as above stairs—after which the party proceeded to the erecting shop, where the engines are finally put together. Here was to be seen the locomotive in every stage, from the boiler and parts just brought in, to the full, finished machine, cleanly painted and beautifully polished. His majesty expressed himself much pleased with the order and neatness of this department, and after witnessing the testing of the boiler of the locomotive by hydraulic pressure, proceeded to the boiler shop; here his majesty, among other things, examined the machine for forming copper tubes, and had the process explained to him; also, the operations of the self acting punching and shearing machines for preparing boiler plates, all of which were in active operation. From the shop, the distinguished visitors went to the iron foundry, and here his majesty saw the process of casting a large driving wheel, which seemed to interest him very much.

The shops where the wheels, axles and trucks are made for the tenders and freight cars was next visited, and all parts worthy of attention examined; from thence to the steam forge hammer shop, where the steam forge hammer, from its novel principle, elicited much attention. His majesty then went to the magazines for finished work; here were shown more than one hundred locomotives, quite complete, with all their finished parts cleanly polished, and the whole of the ma-

chine painted of an uniform color. His majesty expressed himself much pleased with the appearance of the work, and was surprised that so much had been completed in so short a time; eighty of the locomotives have been built entirely during the year 1846, and the establishment was turning out six locomotives and tenders every month. His majesty re-entered the railway train at the magazine, and went by the railway about one mile to the new works erected by the contractors for making the freight and passenger cars. Here his majesty alighted and proceeded to the shop where the wood is prepared entirely by machinery for the freight cars. Here everything was examined with the same attention as at the locomotive department, and the beauty and efficiency of the machinery commented upon in strong terms by his majesty, all the various operations being explained by the contractors. In this shop there are prepared every day, five sets of wood work for the usual size eight wheel box cars, such as are on the American railroads.

From the preparing shop, his majesty and suit went to the erecting shop for freight cars, where the parts are brought together after coming from the machines. In this department twenty-five men put together five box cars complete every day. By this it will be seen how little is left to be done by hand after the parts come from the machines. From this shop his majesty walked to the shop for making passenger cars, where was seen this work in all its stages, from the commencement to the entirely finished carriage. This branch of the work is just fairly in operation and now ready to turn out four of the usual sized eight wheel passenger cars every month. After examining all that was worthy of attention, the Emperor proceeded to the railway carriage, having then seen the whole of the various operations going on at the Alexandroffsky Head Mechanical Works. Previous to getting into the railway carriage, his majesty thanked the contractors for the pleasure he had received in viewing their works, and after shaking them by the hand, the train was put in motion for St. Petersburg, where it arrived about half past three o'clock. The engine which brought his majesty to the works and back, was, by request, run by one of the contractors. On the following day, as a testimony of his majesty's satisfaction, he promoted Colonels Kraft and Melnikoff to the rank of Generals, and ordered the cross of St. Anne to be conferred upon Major G. W. Whistler, the American engineer; also that valuable diamond rings should be presented to the contractors, Messrs. Harrison Winans & Eastwick.

The establishment of Messrs. Harrison, Winans & Eastwick employs at present, 1,920 workmen, including 1,613 Russians, 121 Germans, 164 Swedes, 17 English, and 5 Americans, which number embraces the whole number of foremen and workmen.

The contracts of Messrs. Harrison, Winans & Eastwick embrace 162 twenty-five ton locomotives and tenders; 5,300 iron trucks, for eight wheel cars; 2,500 eight wheel freight

cars; 70 passenger cars, and 2 improved cars on 16 wheels, 80 feet long. Out of which are now finished, 106 locomotives with their tenders; 6,200 wagon trucks; 906 freight cars, and 2 passenger cars.

#### ITEMS.

**Minersville.**—The intelligent and enterprising citizens of Minersville seem determined to keep pace with the neighboring towns in the region, in the way of improvement. It is gratifying to see the manifestations of thrift and prosperity every where evident in this thriving borough. New, neat and comfortable buildings are springing up in all parts of the town, as if by magic. In 1840, the population of Minersville borough was 1,265. According to the present estimate of well informed persons, it now contains over 2,500 inhabitants, having fully doubled its population in seven years. Minersville is one of the best markets in the coal region, and this region is among the best markets in the State for all agricultural products. — *Anthracite Gazette.*

**Steam Communication with the West Indies.**—We understand that a company has recently been formed, in our city, with a capital of some \$60,000, the whole of which has been taken, for the purpose of establishing a communication with Havana. It is in contemplation to build a suitable boat for this purpose, which will also touch at Key West. — *Charleston Courier.*

**Fatal Railroad Accident.**—We learn from the Lowell Courier that on Saturday evening about seven o'clock, as the cars from Concord were approaching the city, near the jail, the engineer discovered a man upon the track. He rung the bell, to give warning, and also reversed the engine; the man saw the cars coming, but was apparently so much frightened that he did not know where to go, although there was plenty of room either side of the track. The train struck him and passed over his body, mangling him in a shocking manner. His name was Edward Croghan, and he resided on Lowell street. He was about sixty years of age, and has left a wife and five children.

**The Southern Telegraph.**—The communication with the south by means of the telegraph, is still frequently interrupted, by the wires being detached at Gray's ferry bridge, in order to open the draw, to allow vessels to pass through. This vexatious hindrance to the permanent advantage of the southern line will soon, however, be removed, as the cord is to be conducted over the wire bridge, and along the road west of the Schuylkill, to a point where the junction with the line reaching to Baltimore will be made. The posts are already planted along the new route.

**Reading and Pottsville Telegraph.**—This line is expected to go into operation as far as Pottsville by the 15th inst. There will be stations at those places, and one has already been opened at Richmond. The charge will be half a cent each word to Richmond, one cent a word to Reading, and a cent and a half each word to Pottsville. No message to be counted less than ten words.

**Improvement to the Magnetic Telegraph.**—Colonel H. W. Cleveland, who has been connected with the line of Magnetic Telegraph, since their first establishment, as an assistant, has we learn by a recent discovery, overcome the difficulty heretofore labored under, of crossing water courses, by a peculiarly insulated wire which is passed in a leaden pipe under water. One of these wires or improvements, has recently been placed under the draw bridge at Gunpowder river, and has been in successful operation for several days. It is, we believe, the intention of this company to adopt this mode of connection at the several draws and streams along the line, which will obviate much the vexatious interruptions heretofore experienced. If the North river and other rivers can be crossed with this improvement, it will be one of great advantage.

**From Rochester Direct to England.**—A correspondent of the Rochester Democrat indulges in some rather high strung speculations in regard to the future lake trade. We are not sure, says the editor of the Democrat, but that, if the St. Lawrence be declared free, his anticipations may be realized. In case that measure, which is said to be the favorite scheme of the new Governor General, is effected, Rochester will become the most important point on the lake. Situated in the centre of supplies, and doing the most extensive business in bread stuffs in the world, with a safe and capacious harbor six miles in length, she will soon become the great emporium of traffic on lake Ontario. She has plenty of lumber for ship building, an abundance of material for constructing mills and unlimited water power for propelling machinery. Flouring mills can be constructed on the lower water power at half the cost elsewhere, because any amount of the best kind of stone can be had on the spot. While the upper mills will continue to trade with New York city, as at present, through the Erie canal, the lower ones will do an equally large business with Montreal or with England direct. The river for six miles is deep enough to float ships of the largest class, and there is scarcely a rod from the pier to the landing where vessels might not be perfectly safe at anchor, the banks varying from 20 to 50 feet in height. One thousand vessels could be moored along the banks of the river, and still have a channel sufficiently wide for two ships to pass.

**Hydraulic Engine.**—Mr. Elisha Bishop, of Jamestown, New York, has invented and furnished us with a description and drawings of an engine on a novel plan, but on true scientific principles, and calculated to supply the place of water wheels for propelling machinery, etc. We shall not attempt a full description without an engraving, but merely say that it consists in part, of two large vertical cylinders with pistons and rods extending up to two cranks on the two ends of a horizontal shaft above. The bottoms of the cylinders are furnished with large disk valves, of peculiar construction, and so arranged that while water is admitted into one of the cylinders from a water pipe or penstock at the

bottom, the water is discharged from the other, and vice versa, alternately. Thus while the force of the water is applied to raising one piston, the other is forced down by atmospheric pressure equal to the weight of the water contained in the cylinder, and the valves are reversed by a simple connection of machinery, on the approach of each piston to the bottom. No other packing is required, than that of an ordinary pump piston, and consequently there will be but little friction. The power is communicated from a drum or gear wheel mounted centrally upon the crank shaft. It may succeed well.—*Sci. American.*

**The Railroad.**—On Saturday, the directors of the Columbus and Xenia (or Springfield) railroad met with the city council of this city, and the commissioners of the county, and had a consultation on the future action in relation to this road. Every thing went off in the most harmonious manner, each expressing the greatest anxiety that the road should be made.

The old directors of the road offered their resignations, to give the city and county an opportunity of electing new ones, and a committee of one from each ward on the part of the city, the three county commissioners, and five from the stockholders of the road were appointed to meet on Tuesday, and propose a new set of directors. This done, a re-survey will commence, and the work be put under contract as soon as possible. The city council also appointed a delegation of two, (Joseph Ridgway and Dr. Goodale) to go to Wheeling, and meet the president, (Mr. McLane) and directors of the Baltimore and Ohio railroad company, who are to be there on Wednesday, in relation to extending the Baltimore and Ohio railroad to Wheeling, if it should be a point, as the law contemplates, or a point near there, directly through Ohio to Columbus, and pointing to St. Louis.

It is expected that Mr. McLane will visit Ohio and reconnoiter as far as Columbus and perhaps farther west. A strong invitation is sent for him, and we have pretty fair assurances that he will find it to the interest of the company, of which he is president, so to do.—*Ohio Statesman.*

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
New York.

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

1748 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 3317

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 117

### LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

### RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

**FULLER & BROWN, Agent.**

No. 139 Greenwich, corner of Cedar street.

September 18, 1846. 1039

### RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 4611

### PIG AND BLOOM IRON.—THE SUBSCRIBERS

are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axle Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
Vine St. Wharf, Philadelphia.

### TO CONTRACTORS.—KENNEBEC AND

**PORTLAND RAILROAD.**—Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cuthance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

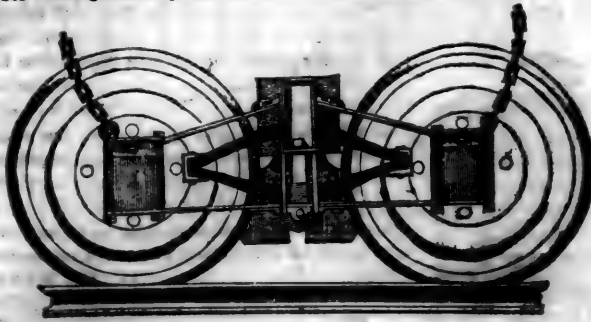
Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

**GEO. S. GREENE, Eng. K. & P. R. R.**  
ENGINEERS OFFICE, K. & P. R. R.,  
Brunswick, Me., April 6, 1847. 1m16



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.**—For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LS. OZ.	INCH.	LS. OZ.		LS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

## THE SUBSCRIBERS, AGENTS FOR RAILROAD SCALES.—THE ATTEN-

tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
**DAVIS, BROOKS & CO.,**  
Jan. 2. [11] 68 Broad St., New York.

**SAM'L KIMBER & CO.,**  
59 North Wharves,  
Philadelphia, Pa.  
Jan. 14, 1846. [1y4]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Supt. of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 13, 1845.

1y19 Supt. Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45

Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
ja45 N. E. cor. 19th and Market st., Philad., Pa.

## RAILROAD IRON.—THE SUBSCRIBER'S

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
29t 79 Water St., New York.

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

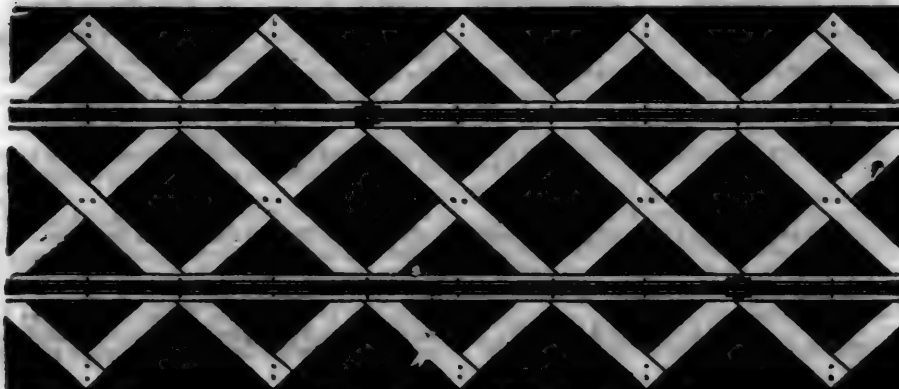


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,324 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,350 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.  
No. 377 South Tenth St., Philadelphia. 334

### FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
**D. K. MINOR.**

#### ENGINEERS' AND SURVEYORS'

#### INSTRUMENTS MADE BY

**EDMUND DRAPER,**

Surviving partner of

**STANCLIFFE & DRAPER.**



No 23 Pear street, 1y10 near Third, 30 below Walnut, Philadelphia.

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\* Maryland.

#### ENGINEERS and MACHINISTS.

**THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)**

**J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)**

**TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)**

**ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)**

**S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)**

**NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)**

**FRENCH & BAIRD, Philadelphia. (See Adv.)**

**NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)**

**ROSS WINANS, Baltimore, Md.**

**CYRUS ALGER & Co., South Boston Iron Co.**

**SETH ADAMS, Engineer, South Boston.**

**STILLMAN, ALLEN & Co., N. Y.**

**JAS. P. ALLAIRE, N. Y.**

**PHENIX FOUNDRY, N. Y.**

**ANDREW MENEELY, West Troy.**

**JOHN F. STARR, Philadelphia, Pa.**

**MERRICK & TOWNE, do.**

**HINCKLEY & DRURY, Boston.**

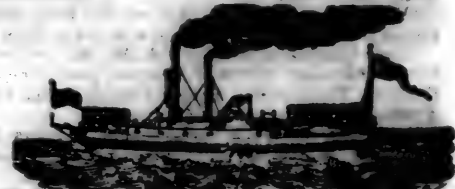
**C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.**



# AMERICAN RAILROAD JOURNAL,

## AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTER SERIES, VOL. III, No. 21

SATURDAY, MAY 22, 1847.

[WHOLE No. 570, VOL. XX]

### AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

### BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

### BRANCH RAILROAD AND STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I. Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

### PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Between Phila. and Pottsville, 92 Miles. No. 1. No. 2.

" Reading, 58 9-25 and 1-90

" Pottsville, 34 1-40 and 1-20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

### LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 9 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 9 p.m. Distance, 26 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35ly

### BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

### SUMMER ARRANGEMENT,

April 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 5 P.M.

Leave Great Falls at 6½ A.M.

### HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.

Leave Haverhill at 6½ A.M. and 4½ P.M.

### READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.

Leave Reading at 6 A.M. and 1½ P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.

Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Sup't.

### SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A. M. and 4 P. M.

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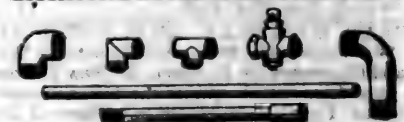
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## CRAMPTON'S IMPROVEMENTS IN LOCOMOTIVE ENGINES.



*Specification of a Patent granted to T. R. Crampton, engineer, of Adam St., Adelphi, for certain improvements in locomotive engines. Patent dated August 25, 1846. Enrolled Feb. 25, 1847.—[Patent Journal.]*

This invention comprises 16 different improvements in the working or other parts of a locomotive engine, and are as follows: According to the first part, the patentee constructs his engine with the axle of the driving wheels placed at the end of the fire box, about midway between the top of the boiler and the under side of the fire box; and in order that the distance between the extreme wheels should not be too great, he shortens the fire box in a longitudinal direction—while at the same time an increased amount of fire box surface is obtained by extending the fire box under the driving axle, and also under the body, or tubular part of the boiler, which portion he forms as near as possible of the same shape as the boiler, when it does not interfere with the axle of the running wheel; second, he combines the use of an extended fire box, under the cylindrical part or body of the boiler, with engines having the axle of the driving wheels under the boiler; the axle is placed close in the angle formed by the fire box and boiler, the fire box being curved under the axle, and is extended some distance beyond it. The advantages of this combination are, that instead of having the fire box the whole length of the bars on the end of the boiler, it may be constructed much shorter, having by that means less overhanging weight, and at the same time retain an equal area of fire box surface. The third improvement consists in placing a spring parallel to the end of the boiler for supporting it from the axle of the driving wheels when placed in that position; the advantages of which are, that the fire box may be of larger dimensions of a narrow gauge railway, than when the springs are at the sides, from the room occupied by them;

he states that he is aware that engines have before been constructed with a spring situated as herein represented, but states that it has always been in conjunction with the axle of the running wheels. Fourth, it consists in placing a spring across the body of the boiler in engines having the axle of the driving wheels placed under the boiler—the weight being supported by side rods, or supporters from the axle, to the ends of the springs—this disposition of the spring enables him to obtain more room for the pumps and other gearing, and also gives greater facility for repairing the same, when such is necessary.—Fifth, he combines the use of outside eccentrics or return cranks for working the slide valves of locomotives, with such engines as are constructed with outside cylinders and straight driving axles placed behind the fire box; the return cranks or eccentrics are represented in our front cut, and consists of an arm which returns from the main crank pin, the centre carrying a joint at its inner end, on which the eccentrics are placed—or, if used as cranks, they must terminate in a position suitable for imparting the required motion to the slide valve. The reversing gear, it will be seen, is the same as that now generally used, and will, therefore, require no explanation. The sixth improvement is a combination of the outside eccentrics or return cranks, already explained with locomotive engines having the straight axle of the driving wheels placed under the body of the boiler; the advantages of which are, that the curve, or that part of the fire box which comes near the axle, can be brought much closer together than when the eccentrics are on the driving axle when so situated. Seventh, these improvements consist in having a fire box under the axle of the driving wheels, when such axle is placed on the end of the fire box (extending as before described) by which the firing is much easier conducted; this may also

be used in conjunction with another door situated above the axle; the only alteration of the engines requisite, being the lowering of the foot plate below the level of the lowest fire door. The eighth improvement consists in placing the pumps and eccentrics for working the slide valves of locomotive engines on the outside of the framing—by which arrangement, easy access is had to the working parts, in the event of any repairs being requisite, and at the same time is always exposed to view, so that the engine driver can more easily see whether the gear is in correct working order. Ninth, he combines the use of an oval form of boiler with engines having the axle of the driving wheels placed behind the fire box—by which means he is enabled to have a boiler of much larger dimensions, where confined by the narrowness of the gauge without increasing the height of the centre of gravity by keeping the body of the same near the ground; he is aware that locomotive boilers have before been made slightly oval, perhaps to the extent of 3 or 4 in., such being considered the extent to which it could be carried without endangering the safety of the locomotive, by carrying the centre of gravity too high, the length of the oval being in the direction of its height; but by having the axle of the driving wheels situated as herein mentioned, the necessity of raising the centre of gravity is obviated by lowering the whole body of the boiler, and consequently the oval may be carried to the extent of 14 or 15 in., and even more—care being taken to strengthen it in proportion by means of stays inside the boiler. Tenth, he attaches the tender to the engine at the smoke box end, which has the effect of pushing it front; it is constructed to contain the water only, the receptacle for coke being on the top of the boiler, over the fire box: an apparatus is also constructed in connection with this arrangement, so that the engine driver can apply the

breaks to the wheels of the tender without leaving the foot plate. The eleventh improvement consists in placing the axle of the driving wheels across the end of the smoke box, the frame work being lengthened to receive support from the bearings; the effect of this will be, that the driving wheels will draw the locomotive after them. Twelfth, the arrangement of engine exhibited in the engraving, is that described under this head of the invention, and the improvement consists in combining the position of the axle of the driving wheels, with the arrangement of outside cylinders, pumps and eccentrics; the boiler has a recess formed in its upper part to receive the driving axle, whereby a boiler of moderate dimensions can be obtained without unnecessarily increasing the diameter of the driving wheels; a passage is placed across this recess above the axle for the free escape of the steam generated in the body of the boiler, into the steam chamber, the steam being carried from thence to the cylinder by the steam pipe over the body of the boiler; this arrangement affords great facilities of working and enlarging the parts, and otherwise improving the locomotive now in use on narrow gauge railways. The thirteenth head relates to the combining outside cylinders, eccentrics and pumps, with engines having the driving axle placed at the end of the extended fire box; this arrangement admits of the fire box shell being carried much closer to the axle, and thereby effecting a saving of room—and renders the whole more convenient and compact, from the absence of eccentrics on the central part of the driving axle. Fourteenth, this is a certain construction of fire box, whereby he is enabled to make the cylindrical or body part of the boiler of much larger dimensions, and consequently to contain a greater number of tubes than can be employed in any other construction of locomotive boilers adapted for a gauge of 4 feet 8½ inches; the diameter of the boiler is such as to project beyond the extreme breadth of the running wheels; the centre, or greatest breadth of the boiler is placed above the periphery of these wheels, with which it does not therefore interfere; the smoke and fire boxes have suitable segmental projections at the upper part, where they are joined to the body, and thus a greater extent of tubular surface is obtained. Fifteenth, the coupling two locomotive engines with the fire box ends together. The tender is placed at the smoke box end of one of the engines so situate, each having suitable communications for obtaining the necessary supply of water; the advantages derived from this mode of coupling being that one set of men is sufficient for the working of both engines, and thereby effecting a great saving. The receptacles for the coke are placed over their respective fire boxes, as explained in a former part of this description. The sixteenth and last improvement is for preventing the entire back surface of the slides in locomotive engines receiving the pressure of the steam, which is productive of great and unnecessary friction: he constructs the slide with a raised ridge of metal on the back part thereof, the

diameter of which is as large as can be described within the back surface of the slide; to this a thin ring or flange of sheet brass is affixed at its inner circumference, which is of a similar diameter with the projection on the back of the slide. At the extreme diameter of the brass ring, another thick ring of metal is affixed—the substance of which is just sufficient to cause it to bear upon the inside of the slide jacket, which is faced parallel with the slide face. It will be obvious that, on steam being admitted to the slide, its pressure on the corners uncovered by the spring packing, will be sufficient to keep it close to its work; while at the same time the steam acts on the ring of metal next the jacket, keeping it against that surface, and consequently preventing the pressure of the steam exerting any undue force on the slide face by excluding it from the back. The thin ring of brass admits of sufficient elasticity to allow for wear or any inequality in the rubbing surfaces. A small aperture is made in the slide jacket for the free escape of any steam which may get between it and the spring ring.

Having described the nature and advantages derived from the adoption of his improvements, he states that which he claims as new, and of his invention, is—first, the combination of an extended fire box, with a locomotive engine, having the axle of the driving wheels placed at the end of the fire box; second, an extended fire box under the cylindrical or main body of the boiler of a locomotive engine in combination with engines having the axle of the driving wheels under the boiler; third, the use of a spring placed parallel to the end of the boiler, supporting the boiler from the axle of the driving wheels; fourth, the use of a spring across the upper portion of the body of the boiler in engines having the axle of the driving wheels placed under the boiler; fifth, the use of outside eccentric or return cranks, for working the slide valves of locomotive engines in combination with engines having outside cylinders, with straight driving axles placed behind the fire box; sixth, the use of outside eccentrics in combination with engines having the straight axle of the driving wheels placed under the body of the boiler; seventh, the use of a fire door under the axle of the driving wheels; eighth, placing the pumps and eccentrics for working the slide valves of the engines outside the framing; ninth, the oval form for the body of the boiler, in combination with engines having the driving wheels placed behind the fire box; tenth, attaching the smoke box end of the engine to the tender containing the water;—eleventh, placing the axle of the driving wheels at the end of the smoke box; twelfth, the combination of outside cylinders, eccentrics and pumps, with an engine having the straight axle of the driving wheels placed in a recess in the boiler; thirteenth, the combination of outside eccentrics, cylinders and pumps, with engines having the driving axle placed at the end of the extended fire box; fourteenth, the use of a fire box with projections at the sides, adapted to receive a large diameter of boiler; fifteenth, coupling two

locomotive engines at the fire box end; sixteenth, the adaptation of a spring metallic ring to the back of the slides of locomotive engines, for the purpose of preventing the pressure of the steam on the principal part of its surface, as hereinbefore described and set forth.

Iron Manufacture.  
(Continued from page 313.)

#### APPENDIX.

In the foregoing pages we have limited our observations on the advantages arising from Mr. Wall's process to only one branch of metallurgy. One and the chief motive was, that iron, being of paramount importance, any improvement in its manufacture would be regarded as of leading interest.—The experiments also in this case were more public, in greater number and variety, and, consequently, if called in question, could more readily be traced, and the truth satisfactorily ascertained. But this mysterious agent, hitherto the mere toy and plaything of philosophers, is now brought forward as a giant of unmeasurable power. In fact, it is hardly possible to exaggerate the importance of the discovery. The following are the words of an eminent French chemist, inserted in *L'Annuaire*, May 15, 1845:

"Mr. Wall, of London, has lately patented a discovery for improvements in the manufacture of iron and other metals, which promises greater results to society at large, than anything produced in the scientific world since the introduction of the steam engine. He has ascertained that the passing of a current of electricity through a body of metal, while in a state of fusion, has the effect, not only of clearing it of all evaporative substances, as sulphur, arsenic, phosphorus, etc., but effects a change in the molecular arrangement, and imparts to it at once a ductility and strength only obtainable hitherto after tedious and expensive processes. It was the celebrated Davy who first exhibited the power of voltaic electricity, by decomposing, with its aid, bodies until then deemed pure elements. 'Such is the power,' says this illustrious chemist, 'of analysis possessed by electricity, that the most seemingly insoluble compounds such as glass, sulphate of barytes, fluor spar, cannot resist its energy. Aggregates the most adhesive, the firmest compounds are unable to withstand, but yield up their elementary bases.' The results obtained by the great philosopher have not been lost, Mr. W. has carried them forward, and rendered them available to the purposes of industry. For on a minute examination of the experiments made by the latter, we shall perceive an analogy of reasoning, and a development of the same principle. \* \* \* The advantages that this discovery must give to society, and the security of life and limb in those situations where both are daily and hourly exposed, on our railroads, as well as in steam vessels, and in machinery of every description, cannot be too well known. Mr. Wall has, we understand, obtained patents from several of the governments in Europe, and also in America. Nations the most advanced, as well as the backward in civilization, will



derive advantages from its adoption. In the former it will give a new impulse to genius and industry, to the latter it will unfold another source of light and progress.

We will not, however enter upon a fresh dissertation, nor lengthen out any further the list of testimonies, but proceed at once to a brief detail of the experiments made by the application of the process to some of the other metals.

"Titanium has been compelled to yield to this novel agent, and gives up its oxygen, hitherto refused when acted upon by most intense heat, to a stream of electricity issuing from a moderately sized battery. I submitted Titanium, says Mr. Wall, which is so called after the fabulous Titans, from its resistance to every attempt to fuse it, or change the condition in which we see it in our Museums, to a stream of voltaic electricity.— Finding by previous analysis, that some pig iron contained about eight per cent. of it, I had two bars, each two inches square, cast in sand. Through one, while in transition from the fluid to a solid state, I passed a current of electricity from a series of ten pairs of zinc and platinized silver plates, eight inches by four, for the space of half an hour. The other bar was left to cool without anything being done to it. I afterwards made a minute research on a portion (1000 grains) of each. In the electrified bar I found a dull white residue of about twelve per cent., which I took for silicon, but on a closer examination, it proved to be the oxide of titanium. I had the other bar as carefully analyzed, and found eight per cent. pure brilliant titanium along with silicon, without the least change either from the action of the fire or the acids. Thus this extraordinary metal gives up, in thirty minutes, its oxygen, which it has refused, though acted upon for years by the concentrated power of a huge blast furnace."— Results equally satisfactory followed experiments made on manganese, from which the oxygen was separated in the space of a few minutes. Copper, also, which refuses to part with its alloys, either to the scientific efforts of ingenuity, or the power of the refining fire, except at a great loss of the metal itself, is cleared of the sulphur, arsenic, etc., in less than an hour, even when opposing a mass of eight or ten tons to the action of the electric battery. Nor is any loss sustained by the metal beyond the riddance of those deteriorating associates: while it is rendered, as is obvious, more durable than the copper manufactured by the ordinary process. For to avoid the loss inevitably resulting from a prolonged attempt at purification, a great portion of alloy is generally left, forming, in conjunction with the metal, a sort of voltaic battery, which immersed as it were in a menstrum formed by the air and water, particularly salt water, operates a speedy dissolution. All the other metals are in like manner purified and rendered more serviceable for their different purposes by this beneficial agent. It is evident, also, how practically the above experiments confirm the theory of Sir H. Davy, develop the principles of electro chemical science, and establish the agency of the

voltaic battery, as an instrument of analysis. Indeed, as a mode of analysis, we may, on a review of the above experiments, be allowed to indulge in the proximate realization of the hope expressed by that great man, 'that it may lead us to the discovery of the true elements of bodies, if the materials acted upon be in a certain state of concentration, and the electricity be sufficiently exalted. For if chemical union, he adds, be of the nature I have ventured to suppose, however strong the natural energies of the elements of bodies may be, yet there is every probability of a limit to their strength; whereas, the powers of our artificial instruments seem capable of infinite increase.'

#### BATTERIES, CONSTRUCTION AND MANAGEMENT.

As may be supposed, in the machinery used by manufacturing establishments, particularly those of iron, where everything is on so large a scale, the chief aim is to combine efficiency of operations with facility of management. On the other hand, science, thro' a morbid jealousy, and puerile assumption of dignity, delights in the use of mysterious terms, and too often endeavors to throw around trifles a fictitious importance, by means of pompous designations. What's in a name? may be asked; much, it will be answered, when the question refers to the rejection or adoption, the retarding or acceleration of any measure, dependant on the co-operation of untutored agents. Electricity, and electrical batteries are looked upon by the rough attendants of the puddling furnace and the rolling mill, as some strange and complicated machinery, adapted only for the cabinets of the theorist and philosopher.

The batteries, which Mr. Wall had till lately made use of in his process, were those adopted by modern science, and which, although very efficient, and easily managed by himself, he found to be too abstruse in principle, and too intricate in their construction for the generality of the workmen, and required a nicety of attention he could not succeed in obtaining. The circumstance proved a source of great anxiety, and frequent disappointment. Actuated by that great unobtrusive spirit, which is ever characteristic of true inventive genius, and which imagines, that what shines so clear to its own sight, cannot be hidden from others, he too often acquiesced in the co-operation of assistants, whose knowledge of electricity extended not beyond the mechanical arrangement of the battery, or, perhaps, more accurately, a *hobby* experience of its effects. An essential requisite might be absent, and it would not be missed; a material derangement might occur, and it would not be noticed. Instead of the alternate position of zinc and copper, a plate of zinc would be associated, side by side, with another of zinc, or copper with copper; or by the accumulation of zinc on the silver, the action would be confined to the cells, without the semblance of a spark at the poles. Other incidents would occur, still more strongly illustrating the inconvenience and risk attending the frequent arranging and taking down indispensable in the employment of the ordinary batteries. The iron bars, to which were

attached the pole wires, would sometimes be driven in heedlessly of direction, so as to come in contact with the tympan plates, which proving better conductors than the melting mass, would carry off the electricity. At other times the bar did not touch the metal, but was placed underneath, upon the damp plate, or, perhaps, only inserted partially in the clay stopping of the tap hole, without reaching the metal within the furnace. Such untoward occurrences required no ordinary forbearance, and only a mind deeply impressed with the value of the discovery would have persevered. The consequences, however, as affecting the claims of the process, and its adoption may be easily guessed; and prejudice, ever on the watch against any innovation in its long cherished system, was not slow to take advantage of the opportunity thus afforded. In several instances, where the indiscriminate apprehension, so commonly entertained by the workmen, against any improvement could be enlisted, the *new project*, as it was termed, was discontinued, and its expulsion from the works effected. It was represented as a mere amusement for science, a costly toy, fit to divert the Hall of the Royal Society, but of too delicate a structure for the rough hands of gaffers and puddlers. It might be plausible in theory, but it was not practicable. Its adoption would necessitate the engaging of a professed philosopher in every iron establishment, for the purpose of superintending its operations: and why derange the existing and long proved order of such colossal works for a something, on the results of which no reliance after all could be placed. Happily these objections have been removed. Mr. Wall has constructed a battery of the simplest form, which requires only the most ordinary knowledge and attention to arrange it; obviating all escape of electricity, and securing a full and unrestricted action. In it are dispensed with, that multiplicity of small plates, which required such nicety of arrangement, and which a slight agitation would disturb: and one continuous surface is exposed to the menstrum. From the peculiar arrangement also of the plates, and the increased extent of surface, the stimulents are not obliged to be so powerful. This battery may be placed in any part of the premises, and remain as a fixture, thus precluding the necessity of taking down and re-fixing, which is so annoying to the workmen, and incurs a risk of a misplacing of the bars, etc. Instead of the bars also being inserted anew in the tap hole or tuyere of the furnace an hour before each tapping, as in the case of other batteries, they are made fast to the back part or side of the tuyere in such a manner, that even in the event of their ends being burnt off, or other casualty, no interference takes place with regard to the effects produced within, provided the wires issuing from the battery remain attached. The same arrangement is made in front or on one side of the tap hole. The commonest workman, or boy, with sense enough to turn a screw backwards and forward, may put it in operation, and manage it with the greatest ease. A battery of this description, capable of acting efficiently on eight

to ten tons of fused metal at a time, does not exceed one-fifth of the price of a Smee's battery of one hundred pairs, eight by three and a half inches. Nor do these advantages of Mr. Wall's new battery interfere with its adaption to temporary operations, or render it less convenient for removal. It is already in use at some of the great iron works on the continent, where it has met with general approval. The description accompanying the drawing of this simple and efficient machine, both of which may be sent, on application from parties desirous of a license of the patent, will enable any ordinary workman to arrange it for operations, without any further assistance.

[The following Theory possesses such strong features of originality, and at the same time, appears so probable, that we cannot forbear giving it publicity. It will, moreover, further illustrate the magnitude of the power whose operations we have been narrating.—This universal agent, is seen by Mr. Wall in every change, chemical or physical, occurring in inert or active matter. The minutest particles, as well as the most gigantic aggregations possess their relative electric quantities, and in the event of any excess or diminution are thrown into a state of excitement, and so continue until the balance is restored.]

#### ON THE FORMATION OF AEROLITHES IN CONNECTION WITH ELECTRICITY.—BY MR. WALL.

The electrical phenomena invariably coincident with volcanic eruptions, seem to have almost escaped notice, or at least, have been but slightly touched upon by philosophers. It appears to have been hitherto regarded as a something, surrounded by an inviolable mystery, repelling all approach of conjecture or discussion. It may have glared for a moment before the eye of the mind, but like the meteor itself, the impression has been but transient; it has passed on unexplained and forgotten. Although the theory which I here advance, may not ensure immediate conviction of its truth, I think there will be found strong features of probability. The hypothesis does not assume the existence of any properties of electricity, not previously recognised and already familiar to the experimentalist. The principles are obvious and require little elucidation to bring them within the reach of the most ordinary understanding. During the last two years, I have been engaged in realizing a plan I had discovered, for the application of voltaic electricity, in the manufacture of metals. The experiments which in great number and variety have been made at the great iron establishments throughout this country, and on the continent, have proved eminently successful, and respectable and competent witnesses have recorded their approval of the efficiency and utility of the process. During the course of those experiments, several phenomena occurred particularly interesting and illustrative of conjectures, which I had previously entertained respecting the nature and formation of meteoric bodies. These brilliant masses, which occasionally rush through our atmosphere, strik-

ing terror into the minds of the ignorant and superstitious, are supposed by some to be fragments of planets, disrupted, and thrown off by some violent concussion, or hurled from the volcanoes, reported to exist in the moon. I think, however on a closer view, we shall not be at a loss to find materials on our own earth, abundantly sufficient for the formation of these strange visitors, without being obliged to suppose them to have taken so long a journey. They are known to exist of an alloy of iron, with some nickel and chrome, with traces of other metals, and are generally invested with a vitreous glaze of earthy matter. The features evidently denote a volcanic origin, while I dispute the claims attributed to the volcanoes of the moon, as our own globe was not destitute of these apparently indispensable characteristics of a material world. These volcanoes, placed as they are in different parts of the earth, are doubtlessly its safety valves, and allow vent for those immense and eternal fires, which in the wise economy of nature are known to exist in the centre of the earth. Confirmatory of the view here taken of the purposes of these volcanoes, there is a circumstance worthy of notice. On examination of the dates of different eruptions, it has been a subject of remark, that the occurrences have taken place at alternately distinct periods. Thus, while the volcanoes at the two poles have been in agitation, those in the vicinity of the equator or in the intermediate zones, as Vesuvius, *Ætna*, etc., were in comparatively a quiescent state, and vice versa. But to proceed. It is natural to suppose that fires, such as those in the centre of the earth, reduce the ores, with which they come in contact, into a metallic state, and thus afford the supply of magnetic or electrical power to the atmosphere through the channel or vent allowed by the volcanoes. Hence the vast electro magnetic concentration found to exist in the neighborhood of volcanic mountains, and which, in its intensity, is ever proportionate to the actual state of agitation or rest in the volcano. It is well known to those conversant with the operations of a foundry, and acquainted with the properties of heat, that portions of the most ponderous metals, when in combination with other matter of a volatile nature, are eliminated and dissipated like steam. While, therefore, fusion is progressing in these vast subterranean furnaces, iron in alloy with carbon and sulphur, and the semi-metals sure to be found there in excess, is carried off in minute particles, and, finding egress through the volcanic crater, is borne aloft simultaneously with the free carbon issuing in the form of smoke. But, notwithstanding the extremely minute division which has taken place, the nature of the affinities of these metallic atoms, remains unaltered, and they will coalesce on the first occasion which offers for a reunion. As long as the atmosphere continues in one uniform settled state, no change in their condition takes place; but one that the electric fluid, still pervading them, and holding them in the same, however extended, but continuous bond becomes disturbed, whether from excitation or alteration

in the equilibrium of the positive and negative conditions, then the power which has kept them in a state of separation is overcome, and the atoms rush again into union. The phenomena indicative or at least coincident with such an occurrence, are strikingly observable. Whether formed from the vapors ascending from the earth, or the accumulation of evaporative matter of volcanoes, clouds of huge magnitude, and of a dark and lowering aspect, stretch athwart the heavens in irregular but determinate course towards the rendezvous, where their operations are about to commence. In these threatening masses of clouds, considerable friction or attrition takes place from the force of the winds, etc. While these forces are thus, as it were, preparing for the assault, a strong commotion is perceptible, which is nothing more than an adjustment of power, producing in the act of obtaining a due balance, the lightning flash, and thunder. The metallic particles are thrown into agitation, their affinities are excited, and they rush together. Thus, again united, they form a body outweighing the specific gravity of the atmosphere, and are consequently borne to the earth in the form so well known as thunderbolts, or meteors. The carbon, sulphur and phosphorus, and the other alloys, are at the same time combined, and accelerate and augment the ignition of the fiery ball in its course towards the earth; this course, although doubtless modified by accidental circumstances, has been generally remarked as bearing on an angle of forty-five along a meridian from north to south. These meteors often travel to a great distance, and fall in parts where there are no appearances of storm, or any change in the atmosphere. These remarks may not, as I before observed, be deemed conclusive, or sufficiently strong to establish the theory here brought forward; they are, in truth, from a conscious inability in expressing my ideas, merely thrown out as inducements to inquiry, and to elicit the opinions of others, far more competent to elucidate and decide on a subject, unquestionably interesting.

N.B. Though perhaps, not directly bearing upon the subject, above treated, I will note down another conjecture. May not the zigzag tracings observed on the magnetic chart, be attributed to the electric currents taking their course towards the various volcanic inlets, which give them the readiest access to the grand source of electro magnetic power, situated in the centre of the earth?

The total inefficiency of the compass, occurring about the latitude of sixty-seven degrees, are familiar to the navigator. It is probable that this instrument, dependant as it is on the electro agency so variously distributed throughout the globe, having passed beyond the range of the volcanic concentration of the electro magnetic power, becomes, in a manner paralyzed, or incapable of a fixed determinative direction. Electricity, is indeed present and continues to the pole itself, but in a comparatively dormant state, the eternal snows opposing an insurmountable barrier, to all excitation, or disturbance of equilibrium.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 108 Chestnut St., Philadelphia.

Saturday, May 23, 1847.

**NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Andros-coggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June.

Satisfactory securities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston, May 8, 1847. 4t21



**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.  
West Troy, May 12, 1847. 1y-21

Railroad to the Pacific.

We commence, in this day's Journal, the Speech of MR. WHITNEY, (delivered in the New York Assembly Chamber on the 30th ult.) upon his great scheme for a railroad to the Pacific. We shall publish it entire—as we believe it contains much information that will be readily appreciated, and because it gives the views of Mr. W. at length, upon his favorite plan for this immense work—which, at some day or other, will, without doubt, be accomplished—whatever may be the opinions in reference to it. We commend the Address to the notice of our readers.

Table of Railroads—Its Corrections, etc.

Thanks to the writer of the following letter, as it gives precisely the information desired to make the Table of American Railroads what we wish. It is dated "Transportation Office, Georgia Railroad and Banking Company, Augusta, Ga., May 1st, 1847," and says:

"DEAR SIR: In your Table of Railroads, 'No 127, Georgia,' please change the Revenue for 1845 to \$315,341 59, gross—and \$179,137 85, net. The Revenue for 1846 is—gross, \$409,935 46—net, \$252,033 10. A Commutation is allowed."

"The western terminus of the Western and Atlantic railroad, (No. 130) should now be entered

Dalton, instead of 'Oothcaloga;' the length 100 miles, instead of '80;' the maximum grade 33 feet, instead of '30;' and the fare per mile 5 cts., instead of '5½.'

"Another railroad, which you have not noticed, called Memphis Branch railroad, is in the process of construction, and will be put in operation in less than one year, from Kingston, Ga., to Rome, Ga.—Length, 17 miles; flat bar, 21 x 8; single track."

"Respectfully your obedient servant,  
"F. C. ARMS."

Niagara Suspension Bridge.

The following are the estimates of the revenue which it is supposed this work will yield when completed:

"In furtherance of the proposals that have been made for the erection of the bridge, capable of sustaining cars, etc., equal to 500 tons weight, at a cost of \$200,000, the following estimate has been made to show the advantage of the projected work, as a profitable investment of capital. To the estimated cost of construction, we may add \$25,000 more, to purchase land, buildings, etc., making the total cost of bridge, etc., \$225,000. It is estimated that the Lake passengers, to and from Buffalo, amount to 1,000,000 yearly. Assuming that one-fifth of the number going to and fro, should cross the suspension bridge and Great Western railroad, the number thus given, would be.....200,000

Add for visitors to the Falls and local travelers.....100,000

Probable number of travellers who would cross the bridge in a year.....300,000

Receipts from 300,000, at 12½ cents each...\$37,500

Merchandise, cattle, etc., say.....12,500

Probable revenue of the bridge.....\$50,000

Which, on the cost of \$225,000, would be over 52 per cent."

Iron in Alabama.

We learn from the Tuscaloosa Monitor, that a bloomery will soon be established near that city, for the manufacture of hollow ware and other descriptions of iron castings. In Bibb, Shelby and Talladega counties, bloomeries and forges have been in operation for some time; in the two former for a number of years—and the results so far are highly encouraging. The Monitor states that beds of the finest ore are found to an incalculable extent in Tuscaloosa county, and it is ascertained to be superior to any in the south or west. An ironmaster of Tennessee gives it the preference both for quantity and quality.

Outlet Lock at New Hope.

We learn from the Trenton State Gazette that the long desired communication between the Delaware Division of the Pennsylvania Canal, and the Feeder of the Delaware and Raritan Canal is about to be effected. It will contribute in no small degree, to the prosperity of this city, of the Delaware and Raritan Canal, and of the Lehigh Coal Companies.

The Pennsylvania Canal Commissioners were required, by an act passed in April, 1846, to make an outlet lock near Well's Falls, as soon as \$20,000 should be loaned the State for that purpose, at an interest of 5 per cent. to be paid out of a revenue raised by a toll of \$1 on every boat passing through the lock. The loan has been raised, and the construction of the lock commenced.

The Delaware and Raritan Canal Company have also begun to make a corresponding lock in their feeder, opposite this outlet lock; and boats can cross the river from one lock to the other. A few rocks

only must be blown out of the way. A dam, however, would have been better, but our legislature has refused to consent to its construction.

This improvement will shorten the distance from New Hope to Trenton, 26 miles, and make a saving of 52 miles in each trip of every boat from the Lehigh to New York and back. It will save the detention now caused by passing 14 locks twice, and the expense of steam-towing between Bristol and Bordentown. Each trip will, it is supposed, be shortened three or four days. A large portion of the trade of the Lehigh will take this course to New York, and the revenues of the state and the canal company be materially increased. Our farmers up and near our canal will feel the advantage too, of a direct communication with the lime-kilns on the Pennsylvania Canal.

We have not learned at what time this improvement will be completed, but presume it will be finished within this year.

Ocean Steam Navigation.

The New York Herald says the splendid steamship Washington is completed in all her parts, and will sail from that port on the first proximo, with a goodly number of passengers, among whom will be the Hon. Richard Rush, our newly appointed Minister to France, several other distinguished gentlemen, and as much freight as she can carry.

The Washington is the pioneer of the first American line, which will consist of four vessels in all, each equal in every respect to the Washington. The building of the second is progressing with due speed, and before the year 1848 all of them will have been completed, and running between New York and Southampton, and Bremen.

The first day of June, we have said, is the day fixed for the Washington to sail. On the same day, one of the new French line of steamers will leave Havre for New York. This latter line will also be composed of four vessels; so that these two lines will compose eight vessels plying directly to that port, commencing on the first of next month. After these lines will have been in operation, we shall have the new Cunard line, and the new American line, of which E. K. Collins, Esq. is the principal, each of which will be composed of four vessels likewise. These will commence early in the year 1848.

RECAPITULATION.

Ocean Steam Navigation Co.,	4
French line,	4
Collins' line,	4
New Canard line,	4

Total number of steamers, - - - 16

Thus, sixteen steamers will ply regularly between the port of New York and the old world, by which we will have a weekly communication with England, France, and other countries, independent of the Boston line of four steamers.

Telegraph to New Orleans.

The agent of the Telegraph line from Washington City to New Orleans, has arrived at the latter place, with an engineer, after having examined the route between that place and Mobile, and the work will be commenced immediately, with a strong force of laborers—the wire cord and other materials are in a state of preparation, and will shortly be shipped at New York.

The State of Virginia has, by a Legislative act, subscribed for \$30,000 of the stock, and the contractors have arranged with the board of public works, to construct the work through the State to the North Carolina line along the railroads. The work is rapidly progressing through the State of North and

South Carolina, where a large force is engaged on the different sections.

#### James River and Kanawha Company.

At an adjourned meeting of the Stockholders of the above company, held on Friday evening last, it was resolved and adopted, as we learn from the Richmond Times, that the salary of the President be reduced from \$2500 and travelling expenses, to \$2000. That the salary of the Secretary be reduced from \$2000 to \$1500. That the salary of the Assistant Clerk be reduced from \$900 to \$500. That the salary of the Chief Engineer be \$3500, and travelling expenses.

Major Walter Gwynn was elected Chief Engineer. Mr. Wm. B. Chittenden was unanimously elected President. Mr. C. O. Gerberding was unanimously elected Secretary of the Company in place of Mr. Chittenden, chosen President.

An interesting discussion took place on the subject of the salary of the President and Chief Engineer, and the propriety of conferring both offices on the same person. It was finally decided, as the resolutions indicate, to separate the offices.

#### Tunnelling the St. Lawrence River.

The railroad from Boston to Ogdensburg will cross Lake Champlain at Rouse's Point—near the Canada line—by a bridge 3,880 feet, the longest ever projected in this country. The depth of water will not exceed 90 feet. After reaching Missisquoi Bay the road will run to the village of Swanton, and thence through St. Albans, to Burlington, where it will form a junction with the two roads now building to connect that place with Boston. Rouse's Point is 90 miles distant from the St. John's railroad at Laprairie opposite Montreal. The two roads can easily be united by an easy grade.

"With a view of connecting Montreal with the Boston road"—says a late number of the Monroe Democrat—"a charter was granted a year since to build a bridge over the narrowest part of the St. Lawrence, 1,500 feet long, and of sufficient height to allow vessels to pass beneath. Many persons in Montreal, well qualified to judge, suppose this to be impossible on account of the great height, the rapid current of the river, which runs at the rate of six miles an hour, and the rush of ice in the spring.—The cost will not be less than one million of dollars. The feasibility of this project has caused much discussion in Montreal, and given rise to a new plan of avoiding the river by a tunnel, the feasibility of which can scarcely be doubted, as the bottom is of rock, that can be easily worked. Tunnelling is common in Europe, where many canals and railroads pass through hills and under streams. In this country, the Baltimore and Ohio, as well as the Albany and Boston railroads, pass through tunnels. The first tunnel made in England was constructed by Brinley, who ran a canal through a hill uniting the valley of the Weaver with that of the Trent. The work was so constructed that only small boats could be propelled by the boatmen lying on their backs and pushing along with their feet. It was, however, a great improvement on the pack horse system of passing the mountains.

"There is at Worsley a canal under ground nine miles long, the termination of which is in the coal mines. When the Duke of New Castle was constructing it, the people thought him insane; but it has yielded a handsome income on its cost. The first tunnel, properly speaking, on a large scale, was made by the Liverpool and Manchester railway company, under the direction of the well known engineer, Stephenson. It is 2,750 feet long, 25 wide,

and 25 high. After that was completed, tunnels became common. The longest in the world, is on the Manchester and Leeds railway, through a chain of mountains, familiarly called the 'Backbone of England.' How to cross this chain, was a problem from the days of the Romans, down to the time that the company referred to, bored them through with a tunnel two and a half miles long, cut most of the way through solid rock. Above the opening, the mountain is, in many places, 800 to 1000 feet high. The Lancashire and Carlisle road passes through a tunnel, the construction of which is considered the great achievement of the age in this species of engineering, on account of the solidity of the rock bored through.

"The proposed tunnel, under the St. Lawrence, at its narrowest part, near St. Helen's Island, will be about one-third of a mile from shore to shore, and about one-third the length of the principal tunnels in England. The depth of the water in the river above is 43 feet. The work would be an achievement creditable to Canadian enterprise; and we have no doubt, from the spirit manifested already, that the project will be carried into effect."

#### Railroads in Massachusetts.

Twenty years ago, Mr. NATHAN HALE, Editor of the Boston Daily Advertiser, wrote a series of articles on railroads, showing their superiority to all other modes of travel, both for freight and passengers—their importance in reviving the declining trade of that city—and the certainty of their proving a safe investment for capitalists. For a year or two the subject met with no favor in any quarter. It was considered so visionary and ridiculous, that it was difficult for two persons to discuss it face to face without laughing. When the Legislature met, a progressive member from Lowell, with great presumption, moved the appointment of a committee to inquire into the expediency of surveying a route for a railroad between Boston and Lowell. It was received with all sorts of scoffs, gibes and ridicule.—One "country member" moved to amend it, by adding another survey from Boston to the moon, the latter being considered quite as feasible and important as the other. The Legislature was inexorable, and refused to grant a cent for any surveys. To quiet the clamors of some half-dozen of what were considered very fussy individuals, they were sanctioned as a sort of self-appointed committee, to collect facts on the subject at their own expense, and report to the next Legislature.

During the summer the committee were industriously engaged—the successful opening of the Birmingham and Manchester railway arrested public attention—Mr. Hale devoted his talents, and a liberal portion of his paper, to urging the importance of the subject, and as the Daily Advertiser was an old conservative journal, considered generally infallible by capitalists, the project gradually appeared more reasonable; and at the next session of the Legislature, a company was incorporated to construct a railroad from Boston to Worcester, and Mr. Nathan Hale was elected its first President. After numerous delays, disappointments, and attempts by many of the discouraged stockholders, to discontinue or suspend the work, during the financial embarrassments that followed General Jackson's "removal of the deposits," it was opened on the 6th of July, 1835, and the most brilliant results followed. A new company was incorporated, which pushed it on to Springfield, and eventually to Albany; and other lines were rapidly formed to Lowell, Providence, Portland, etc., diverging from Boston as a centre, to almost every point in the compass.

There are now fifteen different railroad companies in the State, owning 710 miles of road, built at a cost of about \$30,000,000, each paying dividends ranging from six to ten per cent. per annum. The stocks of railroads have the preference by all classes who are seeking to make permanent investments.—Their stupendous results in a pecuniary, moral and social point of view, are too well known to require a remark.

#### Copper Mines in New Jersey.

The immense stores of mineral wealth in our country are being daily brought to light, and the subject has already excited much interesting research and scientific attention. The great copper beds of the northern lakes bid fair to produce millions to the government, under the recent action of Congress, and we perceive that the Canadian Parliament has adopted a system of regulations looking to the encouragement of enterprise in opening mines on the British side.

Recent operations, says the Pennsylvanian, have opened the eyes of capitalists to the mineral wealth of our immediate sister State, New Jersey. We have already alluded to the Flemington copper mines, now in successful operation, and in the hands of the present company, promising to be a most valuable investment. An article in the New York Tribune, gives a graphic and interesting description of a discovery recently made in another section of the same state, based upon a recent visit to the spot, made by the editor of that paper, Mr. Greeley, whose opinions, we believe to be honest and sincere. He has taken great pains to examine the Allegheny mines, and his report is certainly very flattering.—To all who have any desire to embark in such an investment, opinion like this is useful in the extreme—for there is often too little examination and prudence, and too much disposition to be carried away by a desire to amass large profits at once.

We understand that specimens of the Allegheny copper ore have been smelted at Flemington, which have produced over 39 per cent. Several of our scientific men have made essays, and with most flattering results.

While upon this subject, the following from the North American, of a late date, may be interesting:

"As there appears to be a good deal of anxiety in regard to copper mines at present, we give the following from the Tribune, copied by that Journal from a London paper. In speaking of the discoveries of gun cotton, and the use of ether in surgical operations, the editor says:

"The third discovery of 1846, is perhaps even of greater importance than either of the former. We allude to the lately patented process for smelting copper, by means of electricity. The effect of this change will be quite prodigious. It produces, in less than two days, what the old process required three weeks to effect. And the saving of fuel is so vast, that in Swansea alone the smelters estimate their annual saving in coals at no less than five hundred thousand pounds. Hence it is clear that the price of copper must be so enormously reduced as to bring it into use for a variety of purposes from which its cost at present excludes it.

"The facility and cheapness of the process, too, will enable the ore to be largely smelted on the spot. The Cornish mine proprietors are anxiously expecting the moment when they can bring the ore which lay in the mine yesterday, into a state to be sent to market to-morrow; and this at the very mouth of the mine."

"This discovery will be very valuable here if the mines in New Jersey prove productive and lasting. We see, by the way, that the editor of the Tribune has just paid a visit to the Allegheny copper mine, and has returned with a good opinion of it."



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the New Bedford and Taunton R.R., under the Act of April 16, 1846.

Capital stock.....	\$400,000	
Increase of capital since last report.....		
Capital paid in, per last report.....	400,000	
Capital paid in since last report.....		
Total amount of capital stock paid in.....	400,000	
Funded debt, per last report.....		
Funded debt paid since last report.....		
Funded debt, increase of, since last report.....		
Total present amount of funded debt.....		
Floating debt, per last report.....		
Floating debt paid since last report.....		
Floating debt, increase of, since last report.....		
Total present amount of floating debt.....		
Total present amount of funded and floating debt.....		
Average rate of interest per annum on do.....		
COST OF ROAD AND EQUIPMENT.		
For graduation and masonry, per last report.....	139,438 37	
For graduation and masonry, paid during the year.....	406 56	
Total amount expended for graduation and masonry.....	\$139,844 93	
For bridges, per last report.....	5,013 85	
For bridges, paid during the past year.....		
Total amount expended for bridges.....	5,013 85	
For superstructure, including iron, per last report.....	144,049 98	
For superstructure, including iron, paid during the past year.....	418 58	
Total amount expended for superstructure, including iron.....	144,468 56	
For stations, buildings and fixtures, as per last report, [\$18,610 81—\$5,700 00].....	12,940 81	
[There has been charged to earnings of railroad, and credited construction account, for depreciation of buildings, \$5,700 00]		
For stations, buildings and fixtures, paid during the past year.....	6,353 43	
Total amount expended for stations, buildings and fixtures.....	19,294 23	
For land, land-damages and fences, per last report.....	68,285 70	
For land, land-damages and fences, paid during the past year.....	242 09	
Total amount expended for land, land-damages and fences.....	68,527 79	
For locomotives, per last report.....	20,581 66	
For locomotives, paid during the past year.....		
Total amount expended for locomotives.....	20,581 66	
For passenger and baggage cars, per last report.....	12,435 27	
For passenger and baggage cars, paid during the past year.....		
Total amount expended for passenger and baggage cars.....	12,435 27	
For merchandize cars, per last report.....	10,133 67	
For merchandize cars, paid during the past year.....	1,442 13	
Total amount expended for merchandize cars.....	11,575 80	
For engineering and other expenses, per last report.....	34,998 98	
For engineering and other expenses, paid during the past year.....		
Total amount expended for engineering and other expenses.....	34,998 98	
Total cost of road and equipment.....	456,441 07	

CHARACTERISTICS OF ROAD.		
Length of road.....	20-13 miles.	
Length of single track.....	20-13 miles.	
Length of double track.....		
Length of branches owned by the company, stating whether they have a single or double track.....		
Weight of rail per yard in main road.....	56 pounds.	
Weight of rail per yard in branch roads.....		
Maximum grade, with its length in main road.....	40 ft. per mile for 1-51 m.	
Maximum grade, with its length in branch roads.....		
Total rise and fall in main road.....	168 feet; 193 feet.	
Total rise and fall in branch roads.....		
Shortest radius of curvature, with length of curve in main road.....	1906 feet in 1100 feet.	
Shortest radius of curvature, with length of curve in branch roads.....		
Total degrees of curvature in main road.....	160 deg.	
Total degrees of curvature in branch roads.....		
Total length of straight line in main road.....	171 miles.	
Total length of straight lines in branches.....		
Aggregate length of truss bridges.....	None.	
Whole length of road unfinished on both sides.....	"	

DOINGS DURING THE YEAR.

Miles run by passenger trains, [on New Bedford & Taunton and Taunton branch road, with company engines, 59,188; on Boston and Providence road, with their engines, 30,048]..... 89,236

Miles run by freight trains, [on New Bedford and Taunton and Taunton branch road, with company engines, 19,406; on Boston and Providence road, with their engines, 14,976].....	34,376	
Miles run by other trains.....	504	
Total miles run.....	123,816	
Number of passengers carried in the cars.....	94,167	
Number of passengers carried one mile.....	1,516,418	
Number of tons of merchandize carried in the cars.....	11,013	
Number of tons of merchandize carried one mile.....	218,817	
Number of passengers carried one mile, to and from other roads.....	1,349,478	
Number of tons carried one mile, to and from other roads.....	10,113	
Average rate of speed adopted for passenger trains, including stops.....	2 1/2 minutes per mile.	
Average rate of speed adopted for freight trains, including stops.....	3 " "	
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	1,547 600	
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile.....	876,400	
EXPENDITURES FOR WORKING THE ROAD.		
For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron.....	\$10,928 65	
For repairs of truss bridges.....		
For renewals of iron, including laying down.....	410 85	
For wages of switch-men, gate-keepers and flag-men.....	541 93	
For removing ice and snow.....		
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....		
Total for maintenance of way.....	\$11,881 43	
MOTIVE POWERS.		
For repairs of locomotives.....	2,233 39	
For new locomotives to cover depreciation.....	1,566 39	
For repairs of passenger cars.....	613 56	
For new passenger cars to cover depreciation.....		
For repairs of merchandize cars.....	789 11	
For new merchandize cars to cover depreciation.....	907 25	
For repairs of gravel and other cars.....		
Total for maintenance of motive power.....	6,109 56	
MISCELLANEOUS.		
For fuel and oil.....	9,048 41	
For salaries, wages and incidental expenses, chargeable to passenger department.....	6,004 85	
For salaries, wages and incidental expenses, chargeable to freight department.....	4,322 23	
For gratuities and damages.....	229 00	
For taxes and insurance.....	106 00	
For ferries.....		
For repairs of station building, aqueducts, fixtures, furniture.....		
For interest.....		
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, [Taunton branch].....	48,618 48	
For amount paid other companies as rent for use of their roads, specifying each company.....		
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	3,674 54	
		72,005 51

INCOME DURING THE YEAR.		
[Received from Taunton branch railroad corporation, under agreement with them,].....	8,617 35	
For Passengers:		
1. On the main road exclusively, including branch owned by company.....	8,347 43	
2. To and from other roads, specifying what:		
[Fall River.....]	\$10,846 98	
[Taunton branch.....]	71,061 06	
	81,908 04	
For Freight:		
1. On main road and branches owned by company.....	1,506 05	
2. To and from other connecting roads.....	31,050 44	
U. S. mails, \$1,940. Rents, \$65. Interest, \$103 92.....	2,108 92	
Total income.....	133,968 22	
Net earnings after deducting expenses.....	43,971 72	
DIVIDENDS.		
Surplus not divided.....	30,000 00	
Surplus last year.....	8,271 72	
Total surplus.....	59,585 71	
	67,857 43	
ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:		
Road and bridges.....	20,000 00	
Buildings.....		
Engines and cars.....	7,800 00	
	27,800 00	

The company are now relaying the sleepers on the road, and have contracted for a number of new passenger and freight cars.

No fatal accident has occurred to any passenger, or other person, during the year.—

One passenger only has been injured, caused by his attempt to enter the cars while in motion; being a poor man, travelling with his family, the company voluntarily paid the expense for board and physician's bills, until his recovery.

The directors have returned, as far as they are able, from the books of the company, all the items required by the act of April 16th, 1846. They find it impracticable to return in detail, other items required by said act, for the reason that the accounts and records of the company have not been kept with a view of ever being called upon to answer such minute inquiries. All which is respectfully submitted.

David R. Greene, Ward M. Parker, Thomas Mandell, Matthew Luce.

#### Railroad to the Pacific.

[From the Albany Evening Journal.]

SPEECH OF MR. WHITNEY.

The following is a sketch of Mr. WHITNEY's remarks in the Assembly Chamber, on the evening of the 30th inst.—

The object of my having asked this indulgence, gentlemen, is, that I might have an opportunity of explaining to you a project for a Railroad from Lake Michigan to the Pacific Ocean. I will first give the progress of this project. It has been before the public for nearly three years. I presented a memorial to the last session of 28th Congress, praying for a grant of the public land sixty miles wide from Lake Michigan to the Ocean, with which, by sale and settlement, to build this road. A committee of that body gave a unanimous report in its favor, recommending it to the people, and recommending the public lands as the only means for such a work. During the summer of 1845, I explored and examined a part of the route. My object, to examine the soil and surface, and ascertain what part of the route (then not fully known) was feasible for a road, if the lands would be likely to sell and settle, and produce means for the work; if material, timber, stone, etc., could be had on the route, and if the streams could be bridged, and where. The soil and surface far exceeded my expectations; timber on the border of the Lake, and a little 90 miles west of the Mississippi; then none on to the Rocky Mountains. The streams can be bridged; the Mississippi at or near Prairie du Chene, and the Missouri at above Council Bluffs, but at no place below that point.

At the commencement of the 29th Congress I again present a memorial, praying the same object, which memorial was referred to the committee on public lands in the Senate; the subject was thoroughly examined in all its bearings, and the committee unanimously reported in its favor, and introduced a bill, granting the land prayed for; the bill passed to a second reading, and ordered printed with the report. No further action had at that session. During the last

session, the committee, though composed in part of different members, was unanimous in its favor; but it being a short session, the Mexican war and other exciting subjects, prevented action. Strong expressions in its favor have been made throughout the country by the Public Press almost universally, by public meetings in many of our large cities, and resolutions by Legislatures of several States. Yet the work is so large, promising such vast results, that the mind in many instances is frightened from a fair investigation of the project and the simplicity of the work itself. I start upon the ground that no work, no enterprise, is too great, too magnificent, when dependent alone upon the labor of man for its accomplishment, furnishing itself the sure and sufficient reward for that labor. I will now, gentlemen, proceed in my plain and simple business manner (as you will have perceived I am not a public speaker) to explain this great project; a work promising such vast results as to almost overwhelm the mind; yet I hope to make it appear plain and simple.

The first consideration for any work or project is its feasibility and means to carry it out.

Its feasibility I will first explain. We all know the topography of the Mississippi Valley or Basin, that from the great Lakes to the Gulf, and from the Rocky Mountains to the base of the Alleghenies, is one inclined plain, without rock, mountain, or even hill, and without impediment to the construction of a road, except where the streams cannot be bridged, and where the bottom lands are too wide and too soft for such a work.

From the Lake to the Pass in the mountains a road may be built on a straight line by compass if you please; from the Lake to the Mississippi the grade for any one mile would not exceed 25 feet—thence to the Pass the average is about 6 feet—thence to the ocean the route is more difficult though perfectly feasible; as was shown from the Senate's committee report, taken from the report of Colonel Fremont, who measured the elevations daily from the Missouri to the navigable waters of the Columbia River; and from other travellers, from which Mr. Whitney read extracts, full and clear, showing the route to be feasible, as by the words of the committee:—"A consideration of the facts in the premises, therefore, leaves no doubt of the practicability of the proposed route for a Railroad from the shore of Lake Michigan to the navigable waters of the Columbia River." He said, this point seems settled. The means for the accomplishment of the work. It is not at all probable that Congress will ever appropriate money for such a work; and there are serious objections to the carrying on of such a work by the Government. In the first place it would require years to complete a survey, and then the route must be fixed upon by Congress, and most likely the work would never be commenced, and surely, like the Cumberland Road, never completed. I do not ask or require a survey—I do not ask for one dollar of money—and can commence the work as soon as the

grant is made. The route from the Lake to the River could be fixed upon and the work commenced without delay; to the mountains the route well known; and while the work is progressing from the Lake the entire route could be examined, surveyed and fixed upon.

It is a work beyond the power of individual enterprise, nor can it be done by States not formed. An entire wilderness, it becomes absolutely necessary to connect the settlement of the country with the building of the road.

I have sought, and believe have matured a plan which shall leave with Congress the power of control, and of holding all its security, making it a national road, while at the same time the work could be carried on as an individual enterprise, freed from the immense government patronage, which, as a government work it would create, and, also, freed from the delays, expenses, and insurmountable difficulties sure to arise from constant Legislative changes of direction. I ask Congress to set apart (not grant to me) 60 miles wide of public land from Lake Michigan to the Pacific Ocean, for this especial purpose. I make the starting point from the Lake because, first, as the road would add value to the lands; and, as the land is the only source of means, the road must be located where the land on its line could be applicable to it. Land distant from the road could not be made available, and therefore the project would fail.

There are other important reasons why this should be the starting point. It is all important to have a cheap and direct water communication with the Atlantic, while the road is being built, to take laborers, settlers and materials to the starting point; to have easy communication with a settled country around, to furnish food for the laborers and settlers. It is necessary to have timber and other material convenient; and there is timber on the borders of the Lake, and could be taken on by the road; but from any other starting point on either the Mississippi or Missouri rivers, the difference in cost of transportation for the material alone forbid the commencement of the work. And it is all-important that the starting point should be from where timber can be taken by the road for the settlers, for buildings and fences; for that immense distance of 1,200 miles where there is none, and could not be got there except by the road. From the Lake to the Mississippi, somewhere between Milwaukee and Green Bay, nearly the 60 miles wide can be found unoccupied.

From the Mississippi through to the ocean an entire wilderness. From the Lake onward for 800 miles, the land is of the very best quality for the production of breadstuffs, the surface beautiful, without rock or mountain, or even hill, just enough rolling and descending to let the water off, all covered with a rich grass for grazing or harvest, and enough for millions of cattle; no preparation wanted for a crop; the farmer wants but the plough, the seed, the scythe, and the sickle. About 300 miles of this 800, except on the border of the lake, there is timber only sufficient for agricultural purposes, buildings and



fences, the other 500 miles, and so onward to the mountains, entirely without timber, but as there is an abundance of coal all to the mountain, and timber in the northern part of Wisconsin, it can be taken on by the road at low tolls sufficient for building and fences, to places where there is none, cheaper than the land could be cleared; so that for settlers, particularly those from Europe, with the road, it is better without than with timber, but without the road can never be settled. After the 800 miles to the pass in the mountains, the land is represented as very poor, but I am inclined to believe the facilities which the road would create must render a part of it productive and useful.

From the Pass to the Ocean, I am disposed, from the information I have been able to procure, to believe there are more lands suitable for culture and grazing than we have inferred from different writers.

It is estimated that the road will be, from the Lake to the Ocean, 2,400 miles; that it will cost for a good road, heavy rail, \$20,000 per mile, and except this side the Missouri, cannot produce any income until all is completed, and must be kept in operation, for its own use, will cost, operations, repairs and all, when completed, \$70,000,000—the 2400 miles, by 60 wide, together 92,160,000 acres, one half of which is considered as worth little or nothing without the road, but it is believed the road will enhance the value so as to produce the sum required. This, then, gentlemen, is the capital stock for this great work, to be brought into life and use by the work itself.

It will be seen that the entire project depends upon the 800 miles of land on the first part of the route, which is fast being taken up by settlers, and will soon be so much so as to defeat the project forever; for I do not believe there can ever be any other means than the lands, and when they are gone all is gone—more than 1200 miles without timber, mostly very poor land, and can never settle without the road to give the only means of communication with civilization and markets. I will now give you the simple plan by which I propose to carry out this great work.

As I have said before, I do not ask Congress to grant to me even one acre of land until the road is completed in advance. I first build 10 miles of road at my own expense, which will cost \$20,000 per mile; one mile of the land 60 miles wide is 36,000 acres, allowing for waste land and expenses of sale, will, at \$1½ per acre, produce about \$40,000, equal to build 2 miles of road. When the 10 miles is completed to the satisfaction of a commissioner appointed by government, then and then only, I have 5 miles or one half of the lands with which to reimburse myself, the other half to be sold and the proceeds held in the treasury as a fund, and so on for the 800 miles. Afterwards, to the mountains and to the ocean, when the entire 60 miles do not furnish means to continue the road, then this fund is to be applied to that purpose. And, gentlemen, from your own experience, I think you must be per-

suaded that the facilities which the road must undoubtedly give to settlement, would furnish means quite as fast as it could be applied to the construction of the road. You will perceive the plan is founded entirely upon the wilderness lands, and can only be carried out by connecting the sale and settlement thereof with the building of the road which cannot fail of being of vast importance and benefit to the settlers. With this road commenced, how changed would be the condition of emigrants?—Now they land upon our shores, from their inexperience in a strange land their little means is soon wasted, and many become burdensome to our citizens. And those who go to the far west are obliged from necessity to select their home remote from any means of communicating with markets, without any reward for labor until the first crop is grown, and then the cost of transit takes all, nothing left for an exchange for other comforts and necessities of life, he is surrounded with an abundance of earthly products and still wants; he does not get a reward for his labor to aid in sustaining the other branches of industry.

But commence this road, and the emigrant would have a fixed point of destination. He would not be detained in our cities, but pass on through our river, canal, and the lakes to his new home. If he had 50, 100 or more dollars, he could give one half towards paying for his land; the other half would build his cabin and get in his first crop. Then his labor would be wanted on the road to pay the balance for his land. The next season his crops ripened, and wanted by those who come as he was the season before. And those who come without money, their labor on the road would purchase the land, and they too would soon become independent; and comfort and happiness would surround all. And that would be the moral influence? Necessity often, yes, almost always, tempts man to vice and crime; but place him where his labor receives its just and proper reward, and you raise him. I care not how low he may have been, you elevate him to what his Creator intended him—to a man—and he may rear an offspring, respectable, honorable, and filling the highest places in the land.

The questions have been asked by many:—“How is the road to be protected from the Indians through a wilderness of such vast extent? And how is it to be supplied with water and fuel? And what will support it and keep it up?”

To the first I answer, if the road is built, it can only be done by the sale of the land and settlement of the country on its line, which will be a sufficient protection, and through where the land is poor, the constant business and operations of the road would protect it. The Indian disappears with the game; and it cannot be supposed that game such as buffalo and elk, the dependence of the Indian, would remain long in the vicinity of a railroad constantly in use, as this must be, even for its construction.

Fuel and water. Of the former, coal, there is an abundance all to the Rocky

Mountains and the other side. It has been found on the Columbia river and Vancouver's island.

Water; to the Missouri we cross living streams each ten to twenty miles; from the Missouri to the Pass, we go parallel with, and if necessary, directly on the banks of rivers, from the Pass to the ocean, probably follow the courses of the streams.

(To be Continued.)

#### ITEMS.

**New Spark Arrester.**—We find in an exchange, a brief notice of an invention in this line, by a mechanic of this city—name not given. Its principal peculiarity consists in the arrangement of pipes which conduct the smoke through a horizontal chamber containing a quantity of water, into which all the sparks and cinders are deposited, inasmuch that a white cambric handkerchief was not soiled by being held over the top of the smoke pipe. The trial was made with both coal and pine wood fuel. We wish the inventor ample success, though he may be aware that the use of a water chamber for catching the sparks has been projected and rejected some years since.

**Application** is to be made to the next Legislature of Connecticut, by the Norwich and Worcester railroad company, for liberty to change the track between the upper and lower depots in Norwich, so that it may run in a north and west direction.

**Wealth of the River Amazon, South America.**—We some time since noticed the fact, that a celebrated English nautical and mining engineer had been exploring the country up the Amazon and made some valuable discoveries as to the existence of extensive deposits of the precious metals, auriferous sand in the streams, and many botanical specimens quite unknown in this country. A company was formed in the United States to endeavor to reap the advantages of these discoveries; and the French sent out an expedition two or three years since, which has, however, turned out unsuccessful, as another is now forming to go out in the Astrolabe corvette and Alecton steamer of eighty horse power. The Academy of Science, under the direction of M. Arago, have given all the necessary instruction to the officers; and these vessels will leave, early in the spring, for the Brazils. From the discoveries which have been made, it is presumed that a communication exists between the Amazon and the Pacific, or, at least, a very slight interruption. The result is looked forward to with great interest by scientific men, as there appears to be no doubt entertained of the existence of large quantities of mineral wealth. The Anglo-American company are already prosecuting their researches, and have several narrow boats, drawing but little water, some of which are worked by steam, far up the river. From these exertions it is not too much to expect that we shall soon be in possession of some most interesting information of the mineral and other natural resources, the inhabitants, zoology, botany, and so forth, of this interesting but little known portion of the globe.

**Railroad Travel.**—From present indications there will be during the present season a greater amount of travelling than ever before in this country. The railroads in every direction have in prospect a rich harvest, for it is upon the passenger travel that they reap the largest profits. It is greatly desired, in view of these facts, that every possible precaution may be taken to avoid accidents and loss of life. With wholesome rules, rigidly enforced, we are sure many of the accidents that happen, might be avoided. A statement now before us says, nearly 800,000 passengers have been carried over the Albany and Troy road since its commencement, without the slightest injury or the loss of a single drop of blood to any of the passengers. This is highly creditable, and though we do not believe that the number of accidents by railroad travelling, compared with the greater number of the passengers passing over them, approaches the number of casualties by stage coaches, we still think that, by more efficiently enforced regulations, many of the accidents that now occur might be avoided, to the safety of life and to the profit of companies, resulting from the lessened destruction of railroad property, and the increased travel which the assurance of safety would invite. The fewer accidents and more profitable management by our more systematic neighbors in the eastern States, are proof of this. Notwithstanding the greater amount of travel there, accidents seldom occur, and as regards the profits of their railroads, the fact that there is not now a railroad running from Boston, the stock of which is not above par, is conclusive. What is true of railroads at the east, a very short season of experience will show to be true throughout the union. Railroads cannot fail to become immensely profitable.—*Ledger.*

**Auburn and Rochester Railroad.**—This road having been made the special object of attack by the Buffalo Express, it has been promptly vindicated by the Rochester papers. The Express had charged that it was the worst managed road on the line, and the mail failures, west, were mainly attributable to it. The Rochester Democrat furnishes a table of the time of departure and arrival of trains between Auburn and that place, for nine days, from which it appears that the train has started from Auburn but once at the regular hour, and then it arrived at Rochester in time. Twice it has left fifteen minutes behind, but arrived in time. In all the other cases it has been obliged to wait from one to four hours for the arrival of the eastern trains. The average time is 5 hours and 31 minutes, notwithstanding it has been obliged to lose time at meeting places, being, in consequence of the delay, an irregular train. The trains from Rochester to this place run with such precision, that some of our citizens set their clocks by it, and so far from being a badly managed road, we doubt if there is a better in the country. The agents and engineers are not only men of much experience and understand their business perfectly, but are also gentlemanly and accommodating to a degree that attracts general attention.—*Can. Rep.*

**Ogdensburg Railroad.**—A writer in the Boston Courier shows the advantages to that city of the Ogdensburg railroad in a strong light. He says that if the road had been opened this spring, Boston would have been a gainer by half a million of dollars, because she could have sold that amount of goods for the west, which would have reached their destination a month sooner than by the Erie canal. This is true so far as this year is concerned, but there is not usually so great a difference in the opening of the lake and canal.

**Appointment of Civil Engineer.**—We are pleased to learn that James Herron, Esq., of this city, distinguished for his knowledge of mechanics and scientific acquirements, has been appointed Chief Engineer at the United States Navy Yard at Pensacola, to superintend the public works which Congress has authorized to be constructed at that place, and the plans of which devised by Mr. Herron, have already been adopted.

Mr. Herron will, we doubt not, do justice to the appointment, and render good service to the government.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD.**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Mowing and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 24 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,  
T. FOLLETT, President.

Office of the C. & C. R. R. Co.,  
Burlington, Vt., April 29, 1847.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1748 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 33 1/2

**A. & G. MALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 20 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

### LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,

Willow Street Wharf,  
Philadelphia, Pa.

**RAILROAD IRON.**—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,

No. 139 Greenwich, corner of Cedar street.

September 18, 1846. 1029

**RAILWAY IRON.**—DAVIS, BROOKS & Co., No. 69 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 402

### TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.

Proposals will be received at this office until the 15th of May, for the Grading and Mowing of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.

Engineers Office, K. & P. R. R.)

Brunswick, Me., April 6, 1847. 1m16

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

New York.



# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

her having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d Avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tinner ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	Tons.
11	4 1/2	13 5	10	21 -		50	1 5/16	20
13	3 1/2	8 3	8 1/2	16 -		27	1 1/16	13 1/2
14	3 1/4	6 11	7 1/2	12 8		17	9/16	10 1/2
15	2 3/4	5 2	6 1/4	9 4		13 1/2	1/2	7 1/2
16	2 1/2	4 3	6	8 8		10 1/2	7/16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 360 lbs., and so on in proportion. 1724

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,  
50 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [174]

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
68 Broad St., New York.

Jan. 2. [117]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

(Signed,)

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

(Signed,)

G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

(Signed,)

T. L. SWINN,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

(Signed,)

JOHN LEACH,

Jamaica November 12, 1845. } 1719 Supt. Motive Power.

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without coming or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Castleboro, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLL,

Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English Mower, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tires for locomotive engines, and other railroad carriage wheels, made from common and double refined E. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

N. E. cor. 12th and Market sts. Philad. Pa.

## RAILROAD IRON.—THE SUBSCRIBER'S

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 20 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,

45 North Water St., Philadelphia, or by their Agent, ROBT. NICHOLS, 79 Water St., New York,

## RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 30 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearings and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Cones, cor. Melon st. Office, No. 3 North 5th street, Philadelphia, Pa.

1735

281

**Railroad Travel.**—From present indications there will be during the present season a greater amount of travelling than ever before in this country. The railroads in every direction have in prospect a rich harvest, for it is upon the passenger travel that they reap the largest profits. It is greatly desired, in view of these facts, that every possible precaution may be taken to avoid accidents and loss of life. With wholesome rules, rigidly enforced, we are sure many of the accidents that happen, might be avoided. A statement now before us says, nearly 800,000 passengers have been carried over the Albany and Troy road since its commencement, without the slightest injury or the loss of a single drop of blood to any of the passengers. This is highly creditable, and though we do not believe that the number of accidents by railroad travelling, compared with the greater number of the passengers passing over them, approaches the number of casualties by stage coaches, we still think that, by more efficiently enforced regulations, many of the accidents that now occur might be avoided, to the safety of life and to the profit of companies, resulting from the lessened destruction of railroad property, and the increased travel which the assurance of safety would invite. The fewer accidents and more profitable management by our more systematic neighbors in the eastern States, are proof of this. Notwithstanding the greater amount of travel there, accidents seldom occur, and as regards the profits of their railroads, the fact that there is not now a railroad running from Boston, the stock of which is not above par, is conclusive. What is true of railroads at the east, a very short season of experience will show to be true throughout the union. Railroads cannot fail to become immensely profitable.—*Ledger.*

**Auburn and Rochester Railroad.**—This road having been made the special object of attack by the Buffalo Express, it has been promptly vindicated by the Rochester papers. The Express had charged that it was the worst managed road on the line, and the mail failures, west, were mainly attributable to it. The Rochester Democrat furnishes a table of the time of departure and arrival of trains between Auburn and that place, for nine days, from which it appears that the train has started from Auburn but once at the regular hour, and then it arrived at Rochester in time. Twice it has left fifteen minutes behind, but arrived in time. In all the other cases it has been obliged to wait from one to four hours for the arrival of the eastern trains. The average time is 5 hours and 31 minutes, notwithstanding it has been obliged to lose time at meeting places, being, in consequence of the delay, an irregular train. The trains from Rochester to this place run with such precision, that some of our citizens set their clocks by it, and so far from being a badly managed road, we doubt if there is a better in the country. The agents and engineers are not only men of much experience and understand their business perfectly, but are also gentlemanly and accommodating to a degree that attracts general attention.—*Canan. Rep.*

**Ogdensburg Railroad.**—A writer in the Boston Courier shows the advantages to that city of the Ogdensburg railroad in a strong light. He says that if the road had been opened this spring, Boston would have been a gainer by half a million of dollars, because she could have sold that amount of goods for the west, which would have reached their destination a month sooner than by the Erie canal. This is true so far as this year is concerned, but there is not usually so great a difference in the opening of the lake and canal.

**Appointment of Civil Engineer.**—We are pleased to learn that James Herron, Esq., of this city, distinguished for his knowledge of mechanics and scientific acquirements, has been appointed Chief Engineer at the United States Navy Yard at Pensacola, to superintend the public works which Congress has authorized to be constructed at that place, and the plans of which devised by Mr. Herron, have already been adopted.

Mr. Herron will, we doubt not, do justice to the appointment, and render good service to the government.

### BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

### MISSING NUMBERS

#### OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by  
A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD.**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Masonry and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,  
T. FOLLETT, President.

Office of the C. & C. R. R. Co., }  
Burlington, Vt., April 29, 1847. }

**RAILROAD IRON.**—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 39 1y

**A. & G. HALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

### LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAML KIMBER &amp; CO.,

Willow Street Wharf,  
Philadelphia, Pa.

4tf

### RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to  
FULLER & BROWN, Agent,

No. 139 Greenwich, corner of Cedar street.

September 18, 1846.

1033

### RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf

### TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.

Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cuthance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 31 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. &amp; P. R. R.

ENGINEERS OFFICE, K. & P. R. R. }  
Brunswick, Me., April 6, 1847. }

1m16

### THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

New York.

1y10



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

### ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	21 -	50	15-16	30	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3¼	6 11	7½	12 8	17	9-16	10½	
15	2¾	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

### THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
Jan. 2. [1y4] 68 Broad St., New York.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

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We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa. 1y35

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROX, Sup't of Power.

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Reading, Pa., October 6, 1845.

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[Signed,]

JOHN LEACH,

Jamaica November 12, 1845.

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G. A. NICOLLS,  
Reading, Pa.

ja45

### TO RAILROAD COMPANIES AND MANUFACTURERS

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THOMAS & EDMUND GEORGE,  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

### RAILROAD IRON.—THE SUBSCRIBER'S

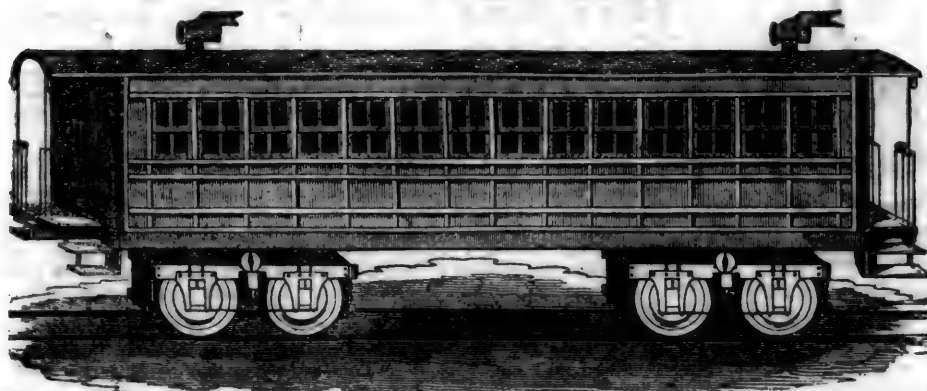
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REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
284 79 Water St., New York.

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

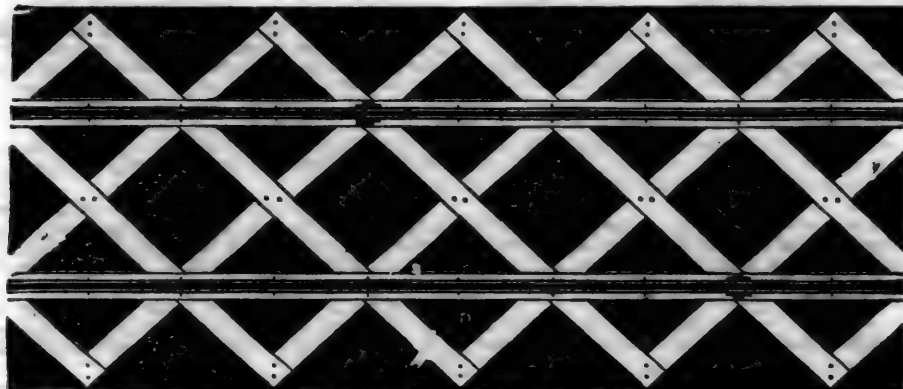


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

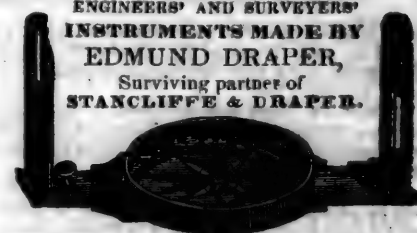
No. 277 South Tenth St., Philadelphia. 331

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia.  
1y10 near Third,

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Dec. 25, 1y\* Pres't. Mt. Savage Iron Works, Maryland.

### ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENERLY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SATURDAY, MAY 29, 1847.

[WHOLE No. 571, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3 p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

## BRANCH RAILROAD and STAGES CONNECTING WITH THE BOSTON AND PROVIDENCE RAILROAD.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and \$3.00	
" " Reading, 58		2.25 and 1.90	
" " Pottsville, 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81y

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

## SUMMER ARRANGEMENT,

April 1, 1847.

## PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

## GREAT FALLS TRAIN.

Leave Boston at 5 P.M.

Leave Great Falls at 6½ A.M.

## HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.

Leave Haverhill at 6½ A.M. and 4½ P.M.

## READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.

Leave Reading at 6 A.M. and 1½ P.M.

## MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.

Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Sup't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.

" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 131y

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of

Hours. Commencing on

Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)

Leave Norwich, at 6 a.m., and 4½ p.m. Leave

Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y

J. W. STOWELL, Sup't.

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon...	\$1 00
" " " Xenia.....	1 50
" " " Springfield..	2 00
" " " Columbus...	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47tf W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the**

Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tilters etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v191y

**BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and**

Afternoon Trains between Balt-

more and York.—The Passenger

trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at...1½ p.m. and 8 a.m.  
Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses

and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor,

not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23,

1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train,] and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, [freight train,] and

11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train]

and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and

11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.

m.; 2 40, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35,

4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermedi-

ate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11,

and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermedi-

ate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50

and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.****Summer Arrangement.**

Philadelphia for Baltimore, 8 a.m. and 10 p.m.

Baltimore for Philadelphia, 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3½ p.m. } No line on Sun-

Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.

m.; 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

2f Engineer and General Superintendent.

**GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM AT-

LANTA to OOTHICALOGA, 80 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a con-

tinuous line, 368 miles in length, from Charleston

to Oothicaloga on the Oostenaula River, in Cass Co.,

Georgia.

**RATES OF FREIGHT.**

		Between Augusta and Oothicaloga and Dalton, 250 miles.	Between Charleston, Oothicaloga and Dalton, 355 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothicaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846.

441y

**THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to**

Oothicaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tusculumbia, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothicaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to

any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

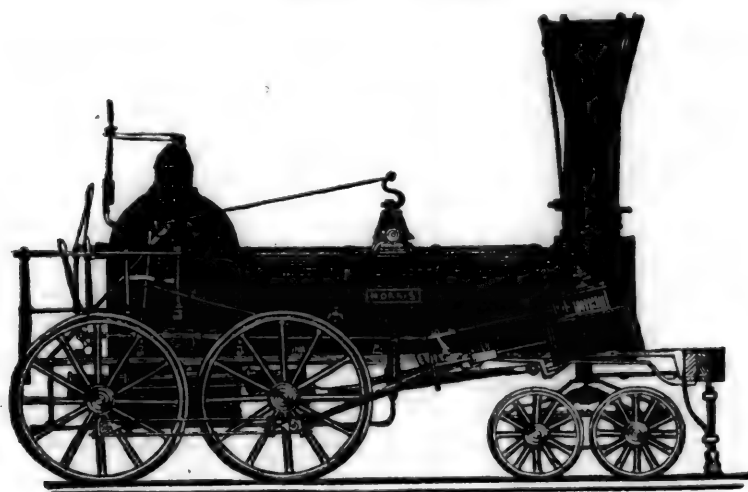
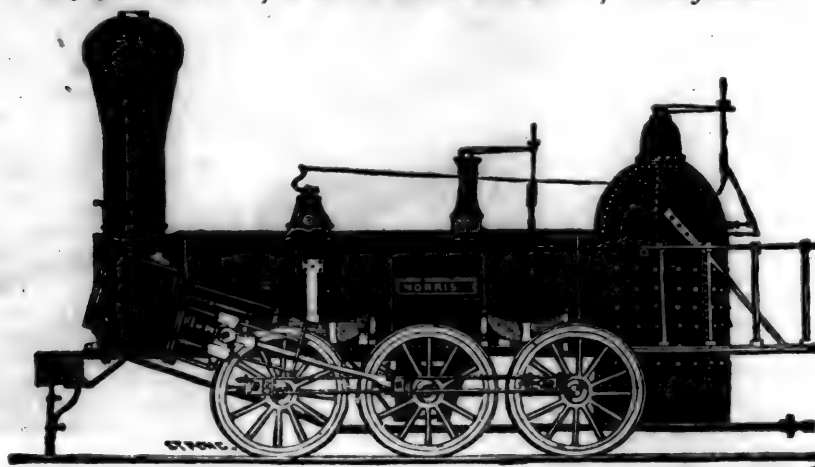
1y1





# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Paton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia. 28th

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x36 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**



**Birkenhead—Its Rise and Progress.**

We find in the Railway Record, of 10th April, the following account of the new city of Birkenhead—opposite Liverpool, on the Mersey. From this account, we predict that it will become a powerful rival to its prosperous neighbor.

"Birkenhead is certainly one of the great phenomena of the age; and, in its rapid growth and leading physiology, strikingly exhibits the character of that influence which commerce is beginning more and more potently to exercise in the social and political affairs of nations. Formerly, kings and courts were the principal founders of cities; and to their pleasures and expenditures the inhabitants looked for support. We have changed all that. Other kinds of considerations altogether determine the sites of towns. The interests of commerce are become more powerful than the interests of courts. New elements entered into our social system with the introduction of steam as a motive power, and revolutionized all the old modes of national development. Other authorities prescribe the grooves in which human events shall move, than political legislators. Governments could not have made a Birkenhead without enormous cost and loss. Of commerce, it has sprung up with a good percentage of profit in its hands. Here is a large, a beautiful, and wealth town, rising as it were spontaneously out of the earth, not at the arbitrary dictate of a powerful despot, but in the quiet way of national growth, and solely in obedience to the requirements of an ever-increasing commerce. Commerce has certainly become a most imposing power! A very few years ago—we remember it perfectly—a few houses fronting the river, looking very desolate in their solitude, and some poor fishermen's huts, constituted the whole of the town, now counting its inhabitants by tens of thousands, and boasting its splendid squares, streets, crescents, and parks: and, within these dozen years, we recollect the bounds of Sir William Stanley running down a fox, and hearing the huntsman's bugle in a wild spot where now stands a square of considerable architectural pretensions, larger than Belgrave square, in London, and every mansion in which has long been tenanted by the commercial and monied aristocracy of the place.

"Birkenhead has grown up chiefly under the direction of a few enterprising individuals. It has, consequently, had all the advantages of unity of effort and design, in its general arrangements, both of public and private buildings, and in carrying into effect the original plans with regard to all those sanitary regulations which the researches of the last few years have placed at the service of the large builder. The founders of Birkenhead determined to make it a model city. They have studied the requirements of populous towns, for the better preservation of the public health—and they have spared no cost to render their infant community as free from the ordinary elements of deterioration as possible. In this respect they have set a noble example to the rest of England. The streets are wide, airy and straight, cutting each other at right angles or running in parallels. This ar-

range gives them something of the prim monotony of the streets of Washington; but if it detract from the picturesque, it serves to promote a free circulation of air—the great desideratum of crowded cities. The houses are only permitted to be built on approved plans. Model cottages for the poor, furnishing many of the conveniences which the houses of the middle classes are without in the metropolis of the country, have been erected, and are let out at an incredibly low rate—and yet they are found to produce a good percentage on the outlay. The market is a fine building—one of the finest of the kind in the kingdom—airy, spacious, plentifully supplied with water, and cooled with refreshing fountains—in every respect utterly unlike the reeking nooks and dens which, to the disgrace of London, are permitted to engender all sorts of foul air and disease in the densest districts of the metropolis. The slaughter houses, those fatal hotbeds of fevers in London, are built at some distance from the town, and are so constructed as to prevent accumulation of decaying matters, and are provided with effective means for carrying them off. Besides these enlightened regulations, tending to procure a constant supply of fresh air, light and water, for the preservation of the public health, a wise forethought determined the projectors to set aside forever, for the benefit of the public, a large piece of ground as a park. This has been laid out with walks, trees, etc., at a cost of nearly £130,000. Yet this will soon be repaid in the advancing value of the surrounding properties, all of which will be let or sold for building purposes. Commercial transactions have taught the inhabitants of Birkenhead that the most liberal policy is ever in the end the most remunerative—a fact that cannot be too well and widely known.

"As a port, Birkenhead offers many advantages to the shipping of all nations.—When completed, the docks will be sufficiently capacious to float all the merchant navy of the world; while, from their form, and the railways being brought down to the edge of the water, they will afford facilities for loading and unloading goods, such as, perhaps, no other seaport in Europe can boast of.

Besides this, there are river advantages on the northern bank of the Mersey. Many eminent engineers have expressed the opinion that Liverpool was on the wrong side of the water. The authorities have likewise resolved to permit the use of lights and fires on board, as in the ports of London, Bristol, etc.—a boon of considerable importance to the crews, and especially to those of American vessels.

"One of the great advantages to commerce likely to arise from the rivalry of the two ports, will be a reduction of the dues now levied upon all goods and shipping in Liverpool. The town dues and the dues on goods, which in Liverpool amount to £200,000 per annum, will not be levied in Birkenhead;—and this amount will be saved to the owner, who will naturally enough use the new docks. In order to maintain her position, Liverpool

will be forced to reduce, if not altogether abolish, her most obnoxious imposts upon shipping, and to offer new inducements for the merchants of continental Europe and America to enter into still more intimate commercial relations with those great manufacturing districts of Lancashire and Yorkshire of which she is the natural outlet to foreign States. With one of the richest corporations in the world, she can well afford this reduction. But the men of Liverpool understand all this too well to need our pointing out."

**Printing Telegraph.**

We find the following article in the London Mining Journal of 10th April. Its statements would be highly interesting to the people of this country, if correct—but, like many other good things, they are too good to be true—during the present year. We have accomplished much in the erection of Telegraphs in this country, upon an improved and superior plan, invented by Professor Morse, for which he is entitled to rich rewards, both in a pecuniary point of view, and in the high regard of his countrymen; but we have not yet, that we are aware of, commenced the erection of a single line on the plan here designated the "Printing Telegraph"—though we have not a doubt but that improvements will be made upon the present plan, equal to those made and making upon the locomotive engine.

The plan of Telegraph of Mr. Morse, which alone is in use in this country, has no printing machine attached; but communicates by dots and lines—made upon paper passing under a point, acted upon by the electric fluid communicated at the other end of the wire—which, by various combinations, represent words, to be written out by the operator, or his assistant. We give this statement, as we find it, at length.

**"Brett's Electric Printing Telegraph.—"**

We had much pleasure in witnessing the operation of this highly useful and important invention, on Saturday last, at the offices in Parliament street. Hitherto the electric telegraph has been confined to the conveyance of verbal messages, which are read by peculiar signs on an indicating dial; and on that account its utility must, to a great extent, be limited. Mr. Brett, however, introduced to us, on Saturday last, an apparatus by which any two parties may themselves carry on a negotiation, or correspondence, and which will be unerringly printed at the rate of 87 letters per minute, without limit of distance either by sea or land. At one extremity of a line of telegraph is fixed a small box, containing a row of keys (similar to those of a pianoforte) and marked with the letters of the alphabet, which is connected by a single wire to a printing machine at the other extremity, containing a wheel, having on its circumference corresponding letters; a slight electric power is sufficient to regulate the motion of the whole, and the instant that a key representing any particular letter is touched at one end of the line, the corresponding letter of the type wheel prints—and the alarm bell rings—at the other. The communications are printed on a scroll of paper of unlimited length, from which any portion of the correspondence may be cut off at pleasure. The oceanic line, (of which Mr. J. Brett is the originator) is equally simple and practicable

—so that a communication made in London could be instantly printed in Dublin, Paris, Berlin, etc. Licenses have been already granted by the patentees to the enterprising house of Messrs. Livingston, Wells & Co., of New York, for the formation of lines of telegraphic communication in North America, to the extent of upwards of 4000 miles. These lines are in rapid progress towards completion, and partly in actual operation, realizing the most sanguine expectations of the patentees and the public. It is expected that in December next, they will be complete from Halifax, through Lower and Upper Canada, and across Niagara, will reach New York, and extend to Washington and New Orleans—so that the moment a vessel arrives at either port, the news it conveys can be printed simultaneously throughout that vast continent, at the rate of 87 letters per minute, without limit of distance. A line has been completed across the Allegheny mountains, and it has worked admirably between Philadelphia and Pittsburg—a distance 300 miles. The journals of Pittsburg have published the proceedings of Congress of one afternoon, on the following morning; and this is the case with all the news from the great cities of the Atlantic coast. The message of the Governor to the Legislature of New York, delivered at Albany on the 7th January, and consisting of two columns and a half of solid nonpareil, was published in New York two hours after its delivery, having been transmitted sentence by sentence by the electric telegraph. Mr. Brett had the honor of a visit from his Royal Highness the Comte de Montemolin, who appeared to take great interest in the invention, and expressed himself much pleased with it, and printed his own name by means of the telegraph. We have little doubt that it will supersede our present system, from its many superior advantages; and the government, in particular, ought not to lose sight of so important a power. The following may be stated as a few of the advantages of this patent: 1. The immediate communication of government orders and despatches to all parts of the empire, and the instant return of answers to the same, from the seats of local governments, etc., all delivered in an unerring and printed form. 2. A general telegraphic postoffice system, uniting the chief and branch offices in London, in connection with all the offices throughout the kingdom; for transmitting messages of business, etc., from merchants, brokers, tradesmen and private persons, at a fixed rate of charge; these communications would be printed on paper, and all enclosed in sealed envelopes, and addressed by confidential clerks, and issued by special messengers or the usual postoffice delivery. 3. The advantages of this plan, applied to police arrangements throughout the United Kingdom, and to the army and navy departments, must be at once obvious to the government. By it, instructions might be conveyed instantaneously, and the movements of the forces so regulated that any available number of them may be brought together at any given point, in the shortest possible time necessary for their

conveyance. These are some of the advantages, others readily suggest themselves, viz: general communication between stations on the coast, such as lighthouses, channels, islands, etc., so that a general supervision of the coast might be obtained for the use of the navy, Lloyd's, and for the prevention, of smuggling, etc. This invention, which, as our readers are aware, is of American origin, is held unitedly by Mr. Brett and Mr. R. E. Rouse, an American."

**"Submarine Electro Telegraph.**—An experiment, completely successful, was witnessed, on Saturday last, in the Isle of Wight, of the powers of Mr. Nott's electric telegraph. A perfect and rapid communication was established between East and West Cowes by means of a single wire sunk across the channel. The telegraphs were attached, one being placed at the Medina Hotel, and the other at the opposite side of the channel, near the Fountain Hotel. The signal bells were rung simultaneously, and the telegraphs commenced working and communicating questions and answers with the greatest precision and certainty, with a galvanic battery of low power, showing that a single isolated wire immersed in the water could carry the electric current a distance of half a mile. The water brought back the current to its source, without the slightest perceptible dispersion or loss of the dynamic power. This experiment demonstrates the perfect practicability of submarine communication, and the question as to its application may be said to be satisfactorily solved. The consequences can scarcely be as yet appreciated, though they are wonderful to contemplate. Instantaneous communication may be established between places divided by estuaries and channels, and islands and continents brought into immediate proximity of correspondence."

#### Locomotive Traction—Its Progress.

##### Galloway's Engine for Inclined Planes.

We published, in the last number of the Journal, a description of "Crampton's" improved locomotive, the "Namur," built for the Namur and Liege railroad, from the London Mining Journal, of April 10th, with an engraving. We now give a description of Galloway's locomotive for ascending inclined planes, from the Railway Record of the same date. The editor of the Record says: "We had an opportunity on Saturday last, and again on Thursday, of inspecting the engine constructed for ascending inclined planes, at present perfectly impracticable with the existing locomotives, in the most favorable weather. The engine has been working experimentally for some months past, on a severe incline laid down alongside the southern side of the Gt. Western line, near the Maidenhead station."

The invention is by Mr. Elijah Galloway, C. E., and consists in fitting to the locomotive a pair of horizontal (or nearly horizontal) driving wheels, and causing them to act on each side of an intermediate rail laid midway between the ordinary rails of each line. These driving wheels are pressed towards each other by means of springs, the pressure of which can be adjusted by screws. The nuts of the screws are toothed wheels, acted upon by a worm, the axis of which is carried up so as to be within the reach of the driver,

and the pressure can, therefore, be regulated to whatever the springs will bear, even when the train is in motion. The horizontal driving wheels are intended to be of the same diameter as the vertical driving wheels, and to act with them simultaneously, by means of connecting or coupling rods. It is proposed to lay the intermediate rails on the inclines only, so that on the levels the train will be propelled by the ordinary driving wheels; but, on coming to the foot of the incline, the additional wheels will run on to and embrace the middle rail, which is pointed so as to allow the wheels to snatch it with facility, and thus in addition to the bite of gravity, there may be obtained any requisite increased amount of bite. The great object of the invention, therefore, is obviously to avoid slipping, which is a most formidable drawback to locomotive traction, for the power of the locomotive depends solely upon the bite or adhesion between the driving wheels and the rails—and in wet weather, or when the rails are covered with snow or ice, this bite becomes so much reduced, that the only way of insuring the progress of the train is by employing additional engines, the locomotive failing, (as Mr. Robert Stevenson stated in his evidence before the Select Committee of the House of Commons, on Atmospheric Railways,) not for want of power, but for want of bite upon the rail.

The experimental engine employed on Thursday was an old engine belonging to the Great Western company, and made by Tayleure & Co. We believe it was the first engine employed on the line. It has been altered to Mr. Galloway's plan, by removing the ordinary driving wheels and substituting two horizontal wheels of three feet diameter, placed so as to nip a middle rail. The experiment, therefore is so far unfavorable to the invention, that the tractive force is obtained solely by the new driving wheels. With this drawback, however, the engine ascends a gradient of 1 in 19, with a gross load of about 32 tons. It also descends with ease and regularity, being controlled by a brake which acts upon the horizontal wheels; and as this breaking power is also dependent on the pressure on the middle rail, it is capable of being carried to a much greater extent than when the brake is applied to the tender—too much pressure on the brakes merely converting the tender into a sledge. The power, after its adaptation to Mr. Galloway's plan of this engine, is stated by Mr. D. Gooch (the company's locomotive engineer) in the following report:

*Gt. Western Railway Engineer's Office }  
Paddington, March 25, 1847. }*

"The following is the result of the experiment I made with Mr. Galloway's locomotive engine, in which the driving wheels are placed horizontally, and act against the sides of a central rail:

Weight of engine,	20 tons.
Weight of load	13½ "
	33½ "

"This weight was taken at a slow speed up an incline of 1 in 19, with a pressure on



the boiler of 60 pounds on the inch, and calculating the power of the engine and actual duty performed, we have as follows:

"With steam at 60 pounds in the boiler, the average effective pressure on the pistons, after deducting back pressure, will be about 50 pounds on the inch; then the area of the two cylinders  $308 \times 50 = 15,400$  pounds, and double stroke of piston equal 32 inches, and circumference of driving wheel, 116 inches.

"Therefore, as 116 inches : 15,400 :: 32 : 4,248 tractive power on the rim of the wheel.

"And gravity per ton 1 in 19 = 118 pounds.  
Friction, do., . . . . . 7

$124 \times 33.5$

tons = 4,187.5 pounds, resistance overcome.

"Therefore,  $4,248 - 4,117 = 61$  pounds, the total loss from the friction of the working parts of the engine which I think is as small a loss as can be hoped for in any class of engines. And from the facility of applying screws to increase the weight on the driving wheels to any required amount, there is no difficulty from slipping.

(Signed,) "DANIEL GOOCH."

We have stated that the novelty of this plan is the obtaining of an extra bite, when such is necessary, to prevent slipping. Archimedes said he could lift the world if he had but a fulcrum; and the difficulty of the locomotive engineer has been heretofore a similar one—the fulcrum has fluctuated with the weather, and in all cases it is limited to the adhesion due to the weight of the engine. An instance of the consequence of this state of things is furnished on the Lickey incline of the Birmingham and Gloucester railway, which is a gradient of 1 in 37 for upwards of three miles. To ascend this incline, an assistant engine is employed, weighing between (if we recollect rightly) 50 and 60 tons—the net load, in many cases, not exceeding 20 or 30 tons. The additional engine, therefore, at least doubles the gross load in such cases, and requires, of course, a corresponding increase of power to surmount the gradient. If the necessary bite can be ensured, engines of the ordinary power and weight would ascend this gradient without the aid of an assistant.

The principle admits of modifications according to the objects sought to be obtained, namely,

First. Increasing the power by increase of bite; and

Secondly. Increasing the power by reducing the size of the driving wheels.

The first of these conditions only would be requisite, where the engine can surmount the gradient of a line in dry weather, but fails when it is wet or greasy.

The second would give the power of ascending inclines where the present locomotive could not move under any circumstances whatever; because by reducing the diameter of the driving wheels, we convert speed into power.

The introduction of such a system, if it succeed to the extent anticipated, will most materially affect the cost of construction, especially through countries where good gradients can be obtained only by resorting to

heavy works, such as tunnels, cuttings, embankments, etc.; and when we consider that by works alone the cost of a railway may be made to vary from £8,000 to £50,000 per mile, the value of an invention which dispenses with those works will be readily appreciated. Nor does it follow that by concentrated gradients, such as would arise from taking more nearly the surface of the country, a great reduction of the mean speed would result, for the conversion of speed into power on ascending the steep inclines would be in some measure compensated for on the descent. It is stated that taking a gradient of 1 in 40 is a maximum. An engine having five feet driving wheels, and power equal to that of the Great Western engine, when secure from slipping, would draw a load of 100 tons at a speed of 30 miles at least per hour, up such a gradient.

#### The Iron Trade

In the London Mining Journal, of April 24th, we find the following article in relation to the iron trade.

"We have in this Journal steadily maintained that the importation of breadstuffs from America, coupled with the altered tariff on the importation of iron into America, would make the Americans customers to a greater extent than formerly for pig and manufactured iron; and the Glasgow market, since the arrival of the Hibernia, is represented to be at the beginning of a considerable advance, although at present, quotations cannot be given much higher.

"In the City article of the Times, the favorable accounts by the Hibernia are confirmed—but without giving credit to the extent of the orders for British manufactures, spoken of in some quarters, it is stated the accounts by this packet furnish signs of a decidedly 'good' trade.

"In our last number, it is recorded in the new Customs Bill, presented to the Chambers by the Minister of Finance, in France, there is a clause exempting sheet iron, iron in bars, copper and zinc, from the payment of all import duty, provided they be employed in the construction of vessels for the merchant navy, within one year after their importation, which is an additional reason for the better appearance of the pig iron market in Scotland.—These evidences of prosperity, in the present state of the money and corn market, argue favorably for an important advance in iron, when the present, to a certain degree, depressing influences are removed; and removed they assuredly will be, as the operation of the exchanges draws back a proportion of bullion left, and now leaving, the country; and the American orders, consequent on the profits of breadstuffs, increasing American expenditure, create a demand for articles of dress, and other British manufactures.

"With reference to railway undertakings, the 200,000 men employed still continue their work, and railway debentures advance in the estimation of the public. In connection with the present value of money, a morning contemporary observes, 'Were the investments in railways a mere speculative bubble, the measures now pursued by the bank would soon put them *hors de combat*—but experi-

ence has shown that the security is as good as the public funds; and as debentures, bearing 5 per cent. interest, are equivalent to a 3 per cent. of stock at 60, with the certainty of the return of the whole amount of the capital, no such disparity, as now exists between them, can be long maintained.' Looking to the future, when the minds of the commercial community can be settled with respect to the next harvest, and these prospects be favorable, there appears every reason to expect, not only an extensive business throughout the manufacturing districts, but a rapid advance in the completion of the railways, on which so large a number of laborers have now, for several months, been daily employed. The question arises, can the iron be supplied when required? and will not the competition, to have the necessary supplies, create an important advance—seeing, that without iron, no line can be put into working order? In conclusion, the 200,000 men employed are preparing roads to require, in one year, the entire make of iron in England, Wales and Scotland—and with this important fact before them, we again leave the iron trade to form their own conclusions."

#### Dublin and Kingston Railway.

We give the following extracts from the last annual report of this company, that our readers may be able to compare it with former reports published in this Journal in relation to the same work; and to show that low fares and frequent trains, especially in connection with large cities, produce good Dividends.

**Directors' Report to the Annual Meeting, April 15.**—The Extension Act, obtained in the last session of Parliament, has provided for half-yearly meetings and half-yearly statements of accounts; and at the first of those meetings under that Act, held on the 16th of October last, the Board presented a Report, with a short abstract of the accounts for the preceding six months, informing you at the same time that they would lay before you on this occasion a detailed statement of accounts and the usual statistical returns for the whole year, so as to enable you to compare them with the previous annual statements. Accordingly they now submit the following statistical returns, with which it has been the practice for several years past to commence their Reports:—

Number of passengers booked at all the stations,	1,668,650
Last year,	1,747,100
Decrease,	70,450
Estimated trips by subscribers,	635,260
Last year,	601,513
Increase,	33,747
Gross number of passengers, subscribers included,	2,903,910
Last year,	2,348,614
Decrease,	44,703
Subscriptions received,	£7,901 1 10
Last year,	7,598 12 10
Increase,	£298 9 0
Gross income from all sources (exclusive of Dalkey),	£51,691 15 9
Last year,	53,036 19 1
Decrease,	£1,345 3 11

*Classification of Passengers for the last Seven Years, including Subscribers.*

Years ended last day of Feb.	1st Class.	2nd Class.	3rd Class.	General Total.
1841	35,558	724,105	759,383	1,519,024
1842	37,001	840,116	754,968	1,632,085
1843	68,156	960,937	728,788	1,758,879
1844	98,076	1,049,243	814,732	1,962,051
1845	104,109	1,219,556	910,769	2,234,433
1846	141,911	1,293,524	913,178	2,348,613
1847	152,389	1,304,798	846,733	2,303,910
<hr/>				
	1844.	1845.	1846.	1847.
Trains despatched	29,564	30,745	30,970	32,479
Miles travelled	177,384	184,470	185,830	194,874
Average coaches per train,	7.484	7.511	7.550	7.373
Average passengers per train,	66.366	72.676	75.830	70.935
Consumption of coke per train, per mile,	24.107lb.	24.220lb.	26.740lb.	28.503
Average receipts per passenger per mile,	0.968d.	0.893d.	0.883d.	0.897d.
Gross receipts—	\$45,255 82.	\$51,187 67.	\$53,036 19 1	\$51,691 15 2
Third-class morning tickets, year ended Feb. 28,				
1843	-	-	-	30,514
1844	-	-	-	37,310
1845	-	-	-	116,920
1846	-	-	-	174,802
1847	-	-	-	192,154
				180,366

You will participate in the regret of the Board that these statements do not exhibit the progressive increase which they have usually shown; but much as this is to be regretted, it cannot excite surprise. The awful calamity which has fallen on this country has not been confined in its effects to the mere immediate sufferers, and one consequence has been a very general anxiety to limit expenditure wherever practicable. This has not only caused a considerable diminution of traffic, but, combined with other circumstances, has tended to produce nearly a total cessation of building in all those districts which affect your income, with the single exception of the neighborhood of Dalkey. The Board, however, confidently hope that the present very general depression will have only a temporary effect, and that as all the elements of the prosperity of the company remain unchanged, there will be a corresponding reaction at no distant period.

The relaying of the road with heavier rails has been completed within the year, and all the old rails sold, leaving a balance of 1,977l. 8s. 2d. against that account, part of which 948l. 3s. has been charged against the unappropriated balance of the contingent fund, and the remainder, 1,029l. 5s. 2d., has been charged to profit and loss.

The appropriation of 2,000l. per annum for the purpose of liquidating the debenture loan having been discontinued by a special general meeting of the 29th of August, 1844, in pursuance of a recommendation from the Board, they have now directed that the sum to the credit of this account amounting to 4,000l., shall be transferred to that of profit and loss.

There appears to be a considerable increase upon this year's account in the expenditure of the locomotive and carriage department, but this is accounted for by the fact that the whole of the new work executed within the year—the outlay upon which has exceeded 4,000l.—has been charged in the

present accounts to annual expenditure, while in last year's account a large proportion of the cost of new engines and carriages was, with your sanction, charged to the contingent fund. A considerable addition has been made by this outlay to the value of your stock of engines and carriages.

On the Dalkey line the atmospheric apparatus has continued to work with great regularity during the past year, the attraction of novelty having, however, nearly ended, there has been some reduction of income from it, but the great impulse which has been given to building in the neighborhood of Dalkey, gives the Board reason to expect that there will be a corresponding increase in the receipts of both lines.

The balance of the profit and loss account applicable to dividend is 9,007l. 11s. 4d.; and the Board declare a dividend for the half-year of 4l. 10s. per share on the original shares of the company, amounting to 9,000l., which will be payable on and after Monday, the 26th inst.

*Revenue Account for Year ended Feb. 28.*

RECEIPTS.	
Passengers,	£42,343 14 3
Police, soldiers and pilots (by contract)	151 2 0
Subscriptions,	7,901 1 10
Parcels,	569 12 5
Post-office contract for conveyance of mails,	500 0 0
Baths, for rent received,	142 0 0
Rents,	80 14 3
Miscellaneous receipts (transfer fees, &c.),	3 10 0
Dalkey traffic,	2,361 5 8
	£54,053 0 10

*EXPENDITURE.*

Locomotive power—	
Salaries and wages, materials, engine-men and firemen's wages, fuel, coke and water-station wages and sacks, coals for forge and shop use, lighting workshops (gas,) oil, tallow, hemp, waste, and petty expenses,	£9,509 3 5
Carriage department—	
Salaries and wages, materials, coals for forge and shop use, lighting workshops (gas,) paints, oils, varnishes, grease and petty expenses,	4,230 4 8
Railway maintenance,	2,828 9 7
Police and night-watch, wages and clothing,	1,060 2 11
Passenger traffic, including salaries of receiving clerks, wages of guards, ticket-takers and door-keepers, printing tickets and dockets, advertising and petty expenses,	1,597 19 11
Stations and lodges, including salaries of superintendents and station-keepers, lighting and repairs of lamps, wages of tablemen, repairs and painting,	3,032 2 8
Parcel traffic, including salaries, wages, books and printing,	256 13 11
Office expenses, salaries of treasurer, clerk of the company, resident engineer, book-keeper, office clerks, stationery postage and servants,	1,802 1 2
Directors' allowance for year ending Feb. 28, 1846, under resolution of thirteenth annual meeting,	1,000 0 0
Rents,	480 6 2
Taxes,	1,103 8 10
Law expenses	121 17 8
Baths, for repairs,	165 4 1
Insurance, charity and miscellaneous charges,	314 5 6

*DALKEY RAILWAY.*

Steam-engine and vacuum pump—Coals,	694 14 2
Enginemmen and stokers' wages,	360 14 10
Oil, tallow, waste,	123 12 11

Mechanics' wages for repairs,	304 15 2
Materials for repairs,	366 19 9
Other expenses,	92 11 3
Working main and piston—	
Materials for repairs,	741 8 11
Mechanics' wages repairing,	129 4 5
Valve-men,	59 12 6
Coaches, repairs and maintenance,	166 8 6
Superintendants and station-keepers,	145 7 1
Ticket-takers, guards, porters, police, door-keepers and night-watch,	497 10 5
Other expenses, repairs of cuttings, taxes, printing, advertising,	215 17 9
Profit and loss, for balance transferred,	22,572 2 8
	£54,053 0 10

*Patent Office Report.*

The Report of the Commissioner of Patents, lately published, shows that during the year ending December 1, 1846, there were 1272 applications for patents. The number of patents issued during the same period was 619, including 13 re-issues, 5 additional improvements, and 59 designs. The number of patents expired, 473. Three applications for extensions have been made, two of which were rejected, and one is still pending. Two patents have been extended by Congress.

There have been received by the commissioner \$50,264 16, of which sum \$11,068 99 have been repaid on applications withdrawn, and for money paid in by mistake. The expenses of the office during the year were as follows: for salaries, \$10,142 97; temporary clerks, \$5,785 61; contingent expenses, \$7,485 19; compensation of district judge, \$100; library, \$675 96; agricultural statistics, \$2,610 68—making the total amount of expenses, \$33,700 41. There was also paid for the restoration of records and drawings, \$786 31, and for duplicate models, \$585—making the aggregate of expenditures, including the amount paid back on withdrawals, \$46,158 71; leaving a balance to be carried to the credit of the patent fund of \$4,105 45.

The amount of money in the treasury to the credit of the patent fund, on the 1st of January, 1845, was \$182,459 00. The balance paid in on the 1st of January, 1847, increases it to \$186,565 14.

The commissioner, in his report, speaks of the existing law by which a subject of Gr. Britain is compelled to pay into the treasury the sum of \$500 before his application can be examined, and the citizens and subjects of all foreign countries to pay \$300 on their respective applications. He says:

"These duties were designed to bear some proportion to the duties required of American citizens making applications for patents in other countries, and on that ground may, perhaps, be justified and defended.

"The effect of this provision is unquestionably to prevent the introduction into this country of many useful and valuable discoveries, which would otherwise be patented and introduced. Similar high duties have the effect to exclude American inventions from other countries. Thus all countries are injured by this system of taxing genius for the exertion of its powers, in order to obtain comparatively a very small and trifling amount of revenue.

"It affords no protection to the American inventor to keep out the discoveries of his foreign emulator (not rival) in the arts, by



taxing the emanations of his genius with high duties, while the country would derive much benefit from their introduction."

The details which follow the report, says the Washington Union, are full of new and interesting facts, and the whole volume embraces nearly four hundred pages.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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#### AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 106 Chestnut St., Philadelphia.

Saturday, May 29, 1847.

#### Androscoggin and Kennebec Railroad.

It will be seen by the advertisement in the Journal that a portion of this road is now ready for the contractors, and that the remaining portions are to be in readiness in July and September next. This is truly going ahead—and we wish the enterprising and spirited friends of the work all the success in its early completion, that they can possibly desire.

#### Philadelphia and Trenton Railroad.

The Philadelphia and Trenton Railroad is completed nearly to Bridesburg, the track having been relaid with a very heavy rail, rolled at the Trenton Mills, of a pattern altogether new. When the road is completed, and the trains make their usual speed, this line will connect with the morning line for New York, by which means Philadelphia passengers will be able to get in New York at 9½ o'clock in the morning. This will make four regular daily lines between the cities.

#### The Railroads.

At the last accounts, stockholders of the Connells-ville Railroad Company, had held a meeting in Pittsburgh and exhibited a strong disposition against continuing the negotiations with the Baltimore and Ohio Railroad Company.

A letter was presented from John P. Kennedy, asking ten days delay before closing the negotiation. The following resolution was adopted:

"Resolved, That in compliance with the request of John P. Kennedy, Esq., a zealous friend of the Pittsburgh connection, the stockholders do now adjourn, to meet again at this place on the 29th inst."

There was a strong feeling evinced at the meeting in favor of co-operation with Philadelphia, in the construction of the road.

Meantime, the work of the Pennsylvania Railroad, to unite the two business capitals of this State, will be pushed forward with vigor, and the benefits will be early felt at both extremities, and along the line.

#### Lewiston and Waterville Railroad.

If any of our friends have ever doubted whether this enterprise would really be undertaken, we think their skepticism is likely to be soon dissipated. By

the notices of the Directors, it appears that the work is to be driven on this season with the utmost energy. They have just ordered an assessment of five per cent. to be paid by the 16th of June next, and have also ordered to be put under contract 15½ miles of the road, from the junction with the Atlantic and St. Lawrence Railroad to Greene Centre. They have resolved too, that the section from Greene Centre to the head of Snow's Pond shall be put under contract by the 15th of July, and the residue of the road to Waterville in September next.

#### The Boston Lines.

There will be no lack of conveyance between New York and Boston during the present season. There are the two night lines by the Norwich and Stonington routes, with two excellent boats each. The Long Island route, through by daylight: and another by way of New Haven and Springfield. There is also an evening line by the Hartford boat, and probably another by steamboat to Providence. Besides these, a new line is opened via Fall River, which will probably be one of the most popular, as well as pleasant routes; and if a traveller is not satisfied with any of these, he can take a night line to Albany, and proceed to Boston at about the same rate of fare, or take the route of Bridgeport and Housatonic to meet the Albany cars at West Stockbridge, and thence by the Western to Boston.

#### The Canals.

We learn that the communication between the Delaware Division of the Pennsylvania Canal, and the feeder of the Delaware and Raritan Canal, will be made during the present season. The Canal Company have commenced their portion of the work, and the Canal Commissioners of Pennsylvania have obtained the loan which they were authorized to make for the work on their side, and they will proceed to distribute the contracts as speedily as possible. The present plan is to deepen the channel across the Delaware, and thus avoid any interruption to the raftmen or other interests engaged on the river.

#### Rochester Four Trade-Tolls.

The following is a statement of the flour shipped east from Rochester on the Erie canal during the first week of canal navigation:

From opening of navigation to May 8th....42,031  
Do. to same date in 1846.....39,900

Increase in 1847.....2,131

It will be seen that the amount of flour shipped in 7 days this year exceeds the quantity shipped last year in 22 days.

The tolls received during the first week of navigation, are as follows:

1847.....\$16,678 50  
1846.....7,440 00

Increase in 1847.....\$9,264 50

#### Railway Traffic.

The editor of the Railway Chronicle—April 24—says: "From our official returns, it appears that the amount of traffic for the last week, on upwards of 2,730 miles of railway, was £159,019, thus accounted for:—£85,638, for the conveyance of passengers only, £39,010 for the carriage of goods, and a remainder of £34,371 for passengers and goods together, not respectively apportioned; being an increase of £24,496 over the corresponding week of last year, when the mileage was about 1,920."

May 1—"It appears that the amount of traffic for the last week, on upwards of 2,730 miles of railway was £161,735, thus accounted for:—£84,223 for the conveyance of passengers only, £42,060 for the car-

riage of goods, and a remainder of £35,432 for passengers and goods together, not respectively apportioned; being an increase of £22,748 over the corresponding week of last year, when the mileage was about 1,920.

#### Puddling Iron.

Some of our readers, says the Scientific American, may not know what is to be understood by the term "puddling iron"—It is simply putting pig or scraps of iron into a heated furnace, where it melts and boils, being constantly stirred until it becomes dry or hard enough to form a ball. It is then taken from the furnace, put under a heavy hammer, and made into blooms which are drawn between heavy rollers into rods or bars to suit customers.

#### Iron Trade in England.

There appears to be a slight depression in this branch of business. The enormous demand, however, for railway purposes, which is not likely, from present appearances, to diminish, will, we think, sustain the present prices, if not cause an advance.

LONDON, APRIL 30, 1847.

	£.	s.	£.	s.	d.
Bar a Wales—ton.....	0	0	8	15	0
" London.....	0	0	9	15	0
Nail rods.....	0	0	10	10	0
Hoop (staf.).....	0	0	11	15	0
Sheet.....	0	0	12	15	0
Bars.....	0	0	11	5	0
Welsh cold blast foundry pig.....	4	10	5	5	0
Scotch pig b Clyde.....	3	7	6	3	10
Rails, average.....	9	5	9	10	0
Russian, CCND c.....	0	0	0	0	0
" PSI.....	0	0	0	0	0
" Gourieff.....	0	0	0	0	0
" Archangel.....	0	0	13	10	0
Swedish d, on the spot.....	0	0	11	15	0
" Steel, fagt.....	0	0	16	10	0
" " kegs e.....	15	0	15	5	0

a, discount 2½ per cent.; b, net cash; c, discount 2½ per cent.; d, ditto; e, in kegs ¼ and ½ inch.

IRON.—Welsh and Staffordshire have been quiet during the week; Scotch pigs have receded, and there are sellers at quotations; In Swedish and Russian nothing doing.

GLASGOW PIG IRON TRADE, April 28.—Pig iron participates in the present general depression of trade. In the absence of speculation in the article, and from the chariness of consumers about buying, prices are receding every week. Something like a panic seized the holders this week, and numerous parcels changed hands at from 68s. 6d. to as low as 67s. 6d. Now, at this low figure, there are no buyers, and a further decline is looked for.

#### The City of Reading.

The annexed remarks, from the United States Gazette, will be read with satisfaction. None can feel a deeper interest in the advancement of the city of Reading than ourselves, and we are happy to note the improvements alluded to below, in that rapidly thriving place. The Gazette says "the good people of Reading are rejoicing in the revival and re-establishment of the Branch of the Bank of Pennsylvania in their city. Yes, the city of Reading—henceforth no longer to be designated by the quaint, old-fashioned cognomen—Reading-town, celebrated only for its annual Fair, and the manufacture of felt hats. We say again, the city of Reading—and a city indeed it has become, not only by legislative fiat, actual incorporation, municipal regulation and appliances from Lord Mayor down, but worthy of the rank, by its population, extent, vast establishments, abounding wealth, and the evidences it every where furnishes of vigorous and successful enterprise. Why, this ancient Borough, surrounded by a population of some sixty thousand Germans, where it was as necessary a few years ago to speak Dutch to make yourself generally understood, as it is still

to speak French to get along comfortably in Montreal or Quebec, will soon present a fair chance to attain a respectable standing in society, and to transact ordinary business with the knowledge of English alone. Their Court House no longer occupies the centre of the street, between the market houses. A new structure has recently been erected for the Courts and public records, upon a liberal scale, in a commanding site, of beautiful proportions, with classic adornments, and magnificent steeple, surmounted by a statue of Justice, which should have been, but for which, if we mistake not, a figure of Liberty has been substituted for the sake of more symmetrical finish. Let the Architect, our own Walter, take the responsibility of this, and let no one say the people of Old Berks reverence the Liberty Cap more than the Scales and Sword of Justice.

And what is still more to their honor, a new county prison has recently been commenced, with Haviland for the Architect, with the liberal appropriation of fifty thousand dollars, and more, upon the plan of solitary confinement and labor, embracing all the new improvements in warming and ventilation, and for exercise and supervision."

#### Atlantic and Ohio Telegraph.

The neglect of the Patentees to ratify the compromise made by Mr. O'REILLY for the immediate construction of the Telegraph Line, from Pittsburgh to Cincinnati and Louisville, is calling forth much complaint at the West. One writer says, "The indignation of the Western people is now showing itself in good earnest. The abandonment of the compromise is loudly called for, and pushing ahead upon the original basis, which has thus far baffled all opposition and detraction."—The Cincinnati Daily Chronicle says:

"We see the Gazette, and occasionally other writers, ask what has become of the Magnetic Telegraph West? We are not one of the Stockholders, but we suspect we know what is the matter with it. The company formed here, had to rely upon the assent of Messrs. Kendall, Smith & Co. The latter were unwilling to give up a portion of their profits to the O'Reilly Company, who possessed the legal right to make the line West, under their contract. Kendall & Co. hold back, and no reliance can be placed upon them whatever. They have not yet given their assent to the contract.

"It was announced some time since, that the O'Reilly Company had commenced making their line West from Pittsburgh. We hope, that as the injunction was removed, they will continue, and finish the line to Cincinnati. There is one thing, the companies looking to profits from Magnetic Telegraphs, should remember, *Lightning* can't be patented, and *wires* can't be patented; for they are in universal use. Nothing is patented, then, but Mr. Morse's particular method of writing down the recruits. Change this method, by any new invention or different construction, and another Company may make another line. This is an important fact, in the idea of future profits from these Companies."

The Telegraph Line between Philadelphia and Pittsburgh is in most admirable working order and continues to give universal satisfaction. Much credit is due to the industry, ingenuity and gentlemanly bearing of the Superintendent, Jas. D. Rym, Esq., and the young gentleman operators on the line for the popular favor it has attained. We annex the following from the Daily Advertiser of this city:

"We learn from an authentic source that this model line fully sustains the high estimate of its capabilities, which was formed prior to its going into operation. No breaks occur daily to interrupt communication, but every thing goes on with the utmost regularity. The substantial manner in which the line was constructed, ensures a degree of permanency which is sadly wanted in most other lines.

"We understand that every thing is now in rea-

diness for the extension of the line from Pittsburgh west. Mr. O'Reilly will superintend the work in person—a fact which affords an ample guarantee that it will be done well and speedily. Mr. O'R., by his indefatigable exertions, and unquestioned integrity, has won the unlimited confidence of the business men and the press, in the section of country which he has traversed. That he will continue to enjoy it, we both hope and believe.

"We may add, for the information of stockholders in the Philadelphia and Pittsburgh line, that a dividend will be declared on the 1st July, and afterwards quarterly.

#### Railroads.

The Trenton (Tenn.) Emporium, in a lengthy and well-written article upon the subject of railroads—in connection with the great resources of the south and west—remarks that "the valley of the Mississippi is destined not only to sustain its own countless millions of future population, but to furnish large supplies of various kinds, to other less favored sections of our own country, and to become the granary and storehouse of a large portion of the civilized world. The millions of the products of this teeming region must find their way by various outlets to the Atlantic seaboard, or to the Gulf of Mexico, there to be consumed or to be shipped to foreign countries. The father of waters and its tributaries afford a natural, but a long, tedious and dangerous outlet, for the surplus products of the great valley, and the foresight and enterprize of our brethren of the Eastern States and cities have already opened various artificial channels, for diverting this immense trade, from its down stream tendency, more directly to their own ports and warehouses. First turnpike roads, rivers and canals were constructed or improved for this purpose; but, more recently, railroads, for travel and transportation, and telegraphic wires, for the transmission of intelligence, have given a new impetus to the traffic through these channels, and to the Herculean efforts now making for their multiplication and extension. Not less than six or seven great lines between the Atlantic ports and the great valley of the west have already been commenced, and are now in more or less rapid progress. Even in the extreme northeastern section of the Union—Portland is endeavoring through Canada, and by way of the Lakes, to reach this mine of inexhaustible wealth, and her works, in concert with those of Canada, are now being prosecuted with energy. Next comes Boston, with her immense capital, her noble enterprize and her far-reaching policy. Not content with one great line of communication with the great west, she avails herself of the improvements of all her neighbors, and is vigorously pressing forward in at least two directions, for the great prize, contending with New York in her own proper sphere, and passing the Niagara through Upper Canada, she will speedily penetrate the rich and populous regions beyond Lake Erie. Her superior forecast and energy draw all within her vortex.

The Empire city, after completing her great Erie canal, relying upon her superior natural advantages, rested from her labors for a time, until she found herself outstripped by her more enterprising neighbor. But now being awakened to the danger, is pushing forward the New York and Erie railroad, hoping to regain her supremacy.

Pennsylvania also is not idle, but in addition to her canal and railroad communication with Pittsburg, is now strenuously urging forward her Great Central railway, which it is in contemplation to extend speedily through the capitals of Ohio, Indiana and Illinois, to the Mississippi, at St. Louis or Alton.—This, when completed, will be the most important

of all the principal railways penetrating the great valley.

Next in order comes the Baltimore and Ohio railroad, one of the first and boldest enterprizes of the time. Through many difficulties, this undertaking of late has advanced under better auspices. It is, however, to be feared, that competition with rival lines may dim its prospects, and retard its progress.

The Old Dominion has at length opened her eyes to the importance of securing a participation in the traffic of the great western valley, and has recently granted a very favorable charter to the Richmond and Ohio road, which it is hoped will induce enterprising capitalists to embrace it with avidity.

Last, though not least in importance, and of the most immediate interest to the southern section of the Union, come the works of South Carolina and Georgia, which now united have nearly reached the southern boundary of Tennessee. An advantageous charter has been granted to the Nashville and Chattanooga railroad company, which promises speedily to commence operations; and this, with the Central railroad, now in contemplation, will complete the communication between the Mississippi river and the Atlantic, at Charleston and Savannah.

These railroads are the iron bands that will bind the various sections of our beloved country together by a community of interest and fraternal feeling, and it is hoped, will render our union indissoluble. The last named of these great public works being of paramount and vital importance to the State of Tennessee, particularly to our portion, it will receive further attention in future numbers."

#### Philadelphia, Wilmington, and Baltimore Railroad Company.

Our readers are aware that for several weeks past an effort has been made on the part of the stockholders and bondholders of this company, for the purpose of relieving it from a large portion of its heavy indebtedness, and improving the condition of the road.

We are happy to state, adds the Gazette, that on the 1st inst. this important and much desired arrangement was fully accomplished, and the debts of the corporation greatly reduced.

The only debt of the Company at this time, is the funded mortgage loan, payable in 1860, and amounting to \$2,161,776 05. The second mortgage loan of £192,500 sterling and the entire floating debt, have been extinguished by a conversion into the stock of the Company at par.

By this arrangement, the annual interest, payable by the Company, is reduced to the sum of seventy thousand dollars. Every note of the Corporation has been paid—and with the large and increasing business of the road, there is now a sure guarantee that its condition will be improved, and the speed of travel increased between the two cities.

The greater portion of the stock of this Company has recently been purchased by capitalists in New England, who have taken it under the conviction that a main line of Railroad, connecting two such cities as Philadelphia and Baltimore, must become productive of handsome profits, if properly improved and equipped, and judiciously managed.

As an earnest of their intention to place the work in an improved condition, we learn that the Iron is now on hand to relay ten miles of track, when the whole line will be continuous heavy edge rail.

This desirable arrangement, which required the unanimous consent of all parties in interest, has been a work of great labor, and we heartily congratulate all the parties and the public upon its successful consummation.



MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Old Colony Railroad Company, under the Act of April 16, 1846.

Capital stock.....	\$1,900,000 00
Increase of capital since last report.....	500,000 00
Capital paid in, per last report.....	888,730 00
Capital paid in since last report.....	310,570 00
Total amount of capital stock paid in.....	1,199,300 00
Funded debt, per last report.....	
Funded debt paid since last report.....	
Funded debt, increase of, since last report.....	
Total present amount of funded debt.....	
Floating debt, per last report.....	
Floating debt paid since last report.....	
Floating debt, increase of since last report.....	233,675 11
Total present amount of floating debt.....	
Total present amount of funded and floating debt..	
Average rate of interest per annum on do.....	5½ per cent.
Interest on floating debt.....	7,237 91

COST OF ROAD AND EQUIPMENT.

For interest paid stockholders to Dec. 1, 1845.....	29,356 11
For graduation and masonry, per last report.....	109,969 30
For graduation and masonry, paid during the year,	35,670 56
Total amount expended for graduation and masonry	145,639 86
For bridges, per last report.....	36,827 12
For bridges, paid during the past year.....	19,104 25
Total amount expended for bridges.....	55,931 37
For superstructure, including iron, per last report,	268,229 85
For superstructure, including iron, paid during the	
past year.....	61,011 01
Total amount expended for superstructure, includ-	
ing iron.....	329,240 86
For stations, buildings and fixtures, as per last re-	
port.....	30,951 35
For stations, buildings and fixtures, paid during the	
past year.....	80,562 28
Total amount expended for stations, buildings and	
fixtures.....	111,533 63
For land, land-damages and fences, per last report.	325,426 91
For land, land-damages and fences, paid during the	
past year.....	269,966 68
Total amount expended for land, land-damages and	
fences.....	595,393 62
For locomotives, per last report.....	20,350 95
For locomotives, paid during the past year.....	15,722 41
Total amount expended for locomotives.....	36,073 36
For passenger and baggage cars, per last report....	13,437 94
For passenger and baggage cars, paid during the	
past year.....	11,172 44
Total amount expended for passenger and baggage	
cars.....	24,610 38
For merchandize cars, per last report, [including	
gravel cars, \$4,700].....	9,800 00
For merchandize cars, paid during the past year, [in-	
cluding gravel cars, \$2500].....	8,792 30
Total amount expended for merchandize cars.....	18,592 30
For engineering and other expenses, per last report.	18,542 10
For engineering and other expenses, paid during the	
past year.....	7,070 00
Total amount expended for engineering and other	
expenses.....	25,612 10
[Amount paid on account of construction of Abing-	
ton and Bridgewater branch].....	17,906 95
Total cost of road and equipment.....	\$1,397,058 77

CHARACTERISTICS OF ROAD.

Length of road.....	37 miles.
Length of single track.....	27 miles.
Length of double track.....	None except turnouts.
Length of branches owned by the company, stating	
whether they have a single or double track.....	
Weight of rail per yard in main road.....	56 pounds.
Weight of rail per yard in branch roads.....	
Maximum grade, with its length in main road....	39 6 ft., length 6000 ft.
Maximum grade, with its length in branch roads..	
Total rise and fall in main road.....	5072 feet.
Total rise and fall in branch roads.....	
Shortest radius of curvature, with length of curve in	
main road.....	716 ft., length 500 ft.
Shortest radius of curvature, with length of curve in	
branch roads.....	
Total degrees of curvature in main road.....	790° 30'.
Total degrees of curvature in branch roads.....	
Total length of straight line in main road.....	30 miles, 179 feet.
Total length of straight lines in branches.....	
Aggregate length of truss bridges.....	94 ft. [Branch.
Whole length of road unfinished on both sides....	6·8 miles, Abington

DOINGS DURING THE YEAR.

Miles run by passenger trains.....	63,073
Miles run by freight trains.....	22,642
Miles run by other trains.....	19,750
Total miles run.....	105,465
Number of passengers carried in the cars.....	213,144
Number of passengers carried one mile.....	3,459,371
Number of tons of merchandize carried in the cars.	116,197
Number of tons of merchandize carried one mile..	229,394
Number of passengers carried one mile, to and from	
other roads.....	96,225
Number of tons carried one mile, to and from other	
roads.....	
Average rate of speed adopted for passenger trains,	
including stops.....	20 miles per hour.
Average rate of speed adopted for freight trains, in-	
cluding stops.....	12½ do.
Estimated weight in tons of passenger trains, includ-	
ing engine and tender, but not including passen-	
gers, hauled one mile.....	
Estimated weight of merchandize trains, including	
engine and tender, but not including freight, haul-	
ed one mile.....	

EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive	
of wooden truss bridges and renewals of iron...	68,604 06
For repairs of truss bridges.....	
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-	
men.....	
For removing ice and snow.....	
For repairs of fences, gates, houses for flag-men,	
gate-keepers, switch-men, tool-houses.....	
Total for maintenance of way.....	8,604 06

MOTIVE POWERS.

For repairs of locomotives.....	2,723 21
For new locomotives to cover depreciation.....	
For repairs of passenger cars.....	1,950 20
For new passenger cars to cover depreciation.....	
For repairs of merchandize cars.....	1,599 63
For new merchandize cars to cover depreciation..	
For repairs of gravel and other cars.....	
Total for maintenance of motive power.....	6,273 14

MISCELLANEOUS.

For fuel and oil.....	11,905 65
For salaries, wages and incidental expenses, charge-	
able to passenger department.....	12,049 50
For salaries, wages and incidental expenses, charge-	
able to freight department.....	5,959 60
For gratuities and damages.....	655 00
For taxes and insurance.....	210 50
For ferries.....	
For repairs of station building, aqueducts, fixtures,	
furniture.....	
For interest.....	
For amount paid other companies in tolls for pas-	
sengers and freight carried on their roads, specify-	
ing each company.....	
For amount paid other companies as rent for use of	
their roads, specifying each company.....	3,000, Worcester railroad.
For salaries of president, treasurer, superintendent,	
law expenses, office expenses of the above offices,	
and all other expenses not included in any of the	
foregoing items.....	8,572 52

INCOME DURING THE YEAR.

For Passengers:

1. On the main road exclusively, including branch	
owned by company.....	101,857 64
2. To and from other roads, specifying what:	

For Freight:

1. On main road and branches owned by company.	20,403 95
2. To and from other connecting roads:	
U: S. mails, rents, and miscellaneous expenses....	3,449 67
Total income.....	125,711 26
Net earnings after deducting expenses.....	68,481 20

DIVIDENDS.

Surplus not divided.....	63,000 00
Surplus last year.....	5,481 90
Total surplus.....	5,481 20

ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges.....	
Buildings.....	
Engines and cars.....	

Nathan Carruth, John Sever, Isaac L. Hedge, Jacob H. Loud, William Thomas, Josiah Quincy, Jr., Uriel Crocker.

to speak French to get along comfortably in Montreal or Quebec, will soon present a fair chance to attain a respectable standing in society, and to transact ordinary business with the knowledge of English alone. Their Court House no longer occupies the centre of the street, between the market houses. A new structure has recently been erected for the Courts and public records, upon a liberal scale, in a commanding site, of beautiful proportions, with classic adornments, and magnificent steeple, surmounted by a statue of Justice, which should have been, but for which, if we mistake not, a figure of Liberty has been substituted for the sake of more symmetrical finish. Let the Architect, our own Walter, take the responsibility of this, and let no one say the people of Old Berks reverence the Liberty Cap more than the Scales and Sword of Justice.

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"It was announced some time since, that the O'Reilly Company had commenced making their line West from Pittsburgh. We hope, that as the injunction was removed, they will continue, and finish the line to Cincinnati. There is one thing, the companies looking to profits from Magnetic Telegraphs, should remember, *Lightning* can't be patented, and *wires* can't be patented; for they are in universal use. Nothing is patented, then, but Mr. Morse's particular method of writing down the recruits. Change this method, by any new invention or different construction, and another Company may make another line. This is an important fact, in the idea of future profits from these Companies."

The Telegraph Line between Philadelphia and Pittsburgh is in most admirable working order and continues to give universal satisfaction. Much credit is due to the industry, ingenuity and gentlemanly bearing of the Superintendent, JAS. D. REED, Esq., and the young gentleman operators on the line for the popular favor it has attained. We annex the following from the Daily Advertiser of this city:

"We learn from an authentic source that this model line fully sustains the high estimate of its capabilities, which was formed prior to its going into operation. No breaks occur daily to interrupt communication, but every thing goes on with the utmost regularity. The substantial manner in which the line was constructed, ensures a degree of permanency which is sadly wanted in most other lines.

"We understand that every thing is now in read-

iness for the extension of the line from Pittsburgh west. Mr. O'Reilly will superintend the work in person—a fact which affords an ample guarantee that it will be done well and speedily. Mr. O'R., by his indefatigable exertions, and unquestioned integrity, has won the unlimited confidence of the business men and the press, in the section of country which he has traversed. That he will continue to enjoy it, we both hope and believe.

"We may add, for the information of stockholders in the Philadelphia and Pittsburgh line, that a dividend will be declared on the 1st July, and afterwards quarterly.

#### Railroads.

The Trenton (Tenn.) Emporium, in a lengthy and well-written article upon the subject of railroads—in connection with the great resources of the south and west—remarks that "the valley of the Mississippi is destined not only to sustain its own countless millions of future population, but to furnish large supplies of various kinds, to other less favored sections of our own country, and to become the granary and storehouse of a large portion of the civilized world. The millions of the products of this teeming region must find their way by various outlets to the Atlantic seaboard, or to the Gulf of Mexico, there to be consumed or to be shipped to foreign countries. The father of waters and its tributaries afford a natural, but a long, tedious and dangerous outlet, for the surplus products of the great valley, and the foresight and enterprize of our brethren of the Eastern States and cities have already opened various artificial channels, for diverting this immense trade, from its down stream tendency, more directly to their own ports and warehouses. First turnpike roads, rivers and canals were constructed or improved for this purpose; but, more recently, railroads, for travel and transportation, and telegraphic wires, for the transmission of intelligence, have given a new impetus to the traffic through these channels, and to the Herculean efforts now making for their multiplication and extension. Not less than six or seven great lines between the Atlantic ports and the great valley of the west have already been commenced, and are now in more or less rapid progress. Even in the extreme northeastern section of the Union—Portland is endeavoring through Canada, and by way of the Lakes, to reach this mine of inexhaustible wealth, and her works, in concert with those of Canada, are now being prosecuted with energy. Next comes Boston, with her immense capital, her noble enterprize and her far-reaching policy. Not content with one great line of communication with the great west, she avails herself of the improvements of all her neighbors, and is vigorously pressing forward in at least two directions, for the great prize, contending with New York in her own proper sphere, and passing the Niagara through Upper Canada, she will speedily penetrate the rich and populous regions beyond Lake Erie. Her superior forecast and energy draw all within her vortex.

The Empire city, after completing her great Erie canal, relying upon her superior natural advantages, rested from her labors for a time, until she found herself outstripped by her more enterprising neighbor. But now being awakened to the danger, is pushing forward the New York and Erie railroad, hoping to regain her supremacy.

Pennsylvania also is not idle, but in addition to her canal and railroad communication with Pittsburg, is now strenuously urging forward her Great Central railway, which it is in contemplation to extend speedily through the capitals of Ohio, Indiana and Illinois, to the Mississippi, at St. Louis or Alton.—This, when completed, will be the most important

of all the principal railways penetrating the great valley.

Next in order comes the Baltimore and Ohio railroad, one of the first and boldest enterprizes of the time. Through many difficulties, this undertaking of late has advanced under better auspices. It is, however, to be feared, that competition with rival lines may dim its prospects, and retard its progress.

The Old Dominion has at length opened her eyes to the importance of securing a participation in the traffic of the great western valley, and has recently granted a very favorable charter to the Richmond and Ohio road, which it is hoped will induce enterprising capitalists to embrace it with avidity.

Last, though not least in importance, and of the most immediate interest to the southern section of the Union, come the works of South Carolina and Georgia, which now united have nearly reached the southern boundary of Tennessee. An advantageous charter has been granted to the Nashville and Chattanooga railroad company, which promises speedily to commence operations; and this, with the Central railroad, now in contemplation, will complete the communication between the Mississippi river and the Atlantic, at Charleston and Savannah.

These railroads are the iron bands that will bind the various sections of our beloved country together by a community of interest and fraternal feeling, and it is hoped, will render our union indissoluble. The last named of these great public works being of paramount and vital importance to the State of Tennessee, particularly to our portion, it will receive further attention in future numbers."

#### Philadelphia, Wilmington, and Baltimore Railroad Company.

Our readers are aware that for several weeks past an effort has been made on the part of the stockholders and bondholders of this company, for the purpose of relieving it from a large portion of its heavy indebtedness, and improving the condition of the road.

We are happy to state, adds the Gazette, that on the 1st inst. this important and much desired arrangement was fully accomplished, and the debts of the corporation greatly reduced.

The only debt of the Company at this time, is the funded mortgage loan, payable in 1860, and amounting to \$2,161,776 05. The second mortgage loan of £192,500 sterling and the entire floating debt, have been extinguished by a conversion into the stock of the Company at par.

By this arrangement, the annual interest, payable by the Company, is reduced to the sum of seventy thousand dollars. Every note of the Corporation has been paid—and with the large and increasing business of the road, there is now a sure guarantee that its condition will be improved, and the speed of travel increased between the two cities.

The greater portion of the stock of this Company has recently been purchased by capitalists in New England, who have taken it under the conviction that a main line of Railroad, connecting two such cities as Philadelphia and Baltimore, must become productive of handsome profits, if properly improved and equipped, and judiciously managed.

As an earnest of their intention to place the work in an improved condition, we learn that the Iron is now on hand to relay ten miles of track, when the whole line will be continuous heavy edge rail.

This desirable arrangement, which required the unanimous consent of all parties in interest, has been a work of great labor, and we heartily congratulate all the parties and the public upon its successful consummation.



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Old Colony Railroad Company, under the Act of April 16, 1846.

Capital stock .....	\$1,900,000 00
Increase of capital since last report .....	500,000 00
Capital paid in, per last report .....	888,730 00
Capital paid in since last report .....	310,570 00
Total amount of capital stock paid in .....	1,199,300 00
Funded debt, per last report .....	
Funded debt paid since last report .....	
Funded debt, increase of, since last report .....	
Total present amount of funded debt .....	
Floating debt, per last report .....	
Floating debt paid since last report .....	
Floating debt, increase of, since last report .....	233,675 11
Total present amount of floating debt .....	
Total present amount of funded and floating debt ..	
Average rate of interest per annum on do. ....	5½ per cent.
Interest on floating debt .....	7,237 91

## COST OF ROAD AND EQUIPMENT.

For interest paid stockholders to Dec. 1, 1845 .....	29,356 11
For graduation and masonry, per last report .....	109,969 30
For graduation and masonry, paid during the year ..	35,670 56
Total amount expended for graduation and masonry ..	145,639 86
For bridges, per last report .....	36,827 12
For bridges, paid during the past year .....	19,104 25
Total amount expended for bridges .....	55,931 37
For superstructure, including iron, per last report ..	268,229 85
For superstructure, including iron, paid during the past year ..	61,011 01
Total amount expended for superstructure, including iron ..	329,240 86
For stations, buildings and fixtures, as per last report ..	30,951 35
For stations, buildings and fixtures, paid during the past year ..	80,582 28
Total amount expended for stations, buildings and fixtures ..	111,533 63
For land, land-damages and fences, per last report ..	325,426 91
For land, land-damages and fences, paid during the past year ..	269,966 68
Total amount expended for land, land-damages and fences ..	595,393 62
For locomotives, per last report .....	20,350 95
For locomotives, paid during the past year .....	15,722 41
Total amount expended for locomotives .....	36,073 36
For passenger and baggage cars, per last report .....	13,437 94
For passenger and baggage cars, paid during the past year .....	11,172 44
Total amount expended for passenger and baggage cars .....	24,610 38
For merchandize cars, per last report, [including gravel cars, \$1,700] ..	9,800 00
For merchandize cars, paid during the past year, [including gravel cars, \$2,500] ..	8,722 30
Total amount expended for merchandize cars .....	18,522 30
For engineering and other expenses, per last report ..	18,542 10
For engineering and other expenses, paid during the past year .....	7,070 00
Total amount expended for engineering and other expenses ..	25,612 10
[Amount paid on account of construction of Abington and Bridgewater branch] .....	17,906 95
Total cost of road and equipment .....	\$1,397,058 77

## CHARACTERISTICS OF ROAD.

Length of road .....	37 miles.
Length of single track .....	27 miles.
Length of double track .....	None except turnouts.
Length of branches owned by the company, stating whether they have a single or double track .....	
Weight of rail per yard in main road .....	56 pounds.
Weight of rail per yard in branch roads .....	
Maximum grade, with its length in main road .....	39 6 ft., length 6000 ft.
Maximum grade, with its length in branch roads ..	
Total rise and fall in main road .....	5072 feet.
Total rise and fall in branch roads .....	
Shortest radius of curvature, with length of curve in main road .....	716 ft., length 500 ft.
Shortest radius of curvature, with length of curve in branch roads .....	
Total degrees of curvature in main road .....	790° 30'.
Total degrees of curvature in branch roads .....	
Total length of straight line in main road .....	30 miles, 179 feet.
Total length of straight lines in branches .....	
Aggregate length of truss bridges .....	94 ft. [Branch.
Whole length of road unfinished on both sides .....	6-8 miles, Abington

## DOINGS DURING THE YEAR.

Miles run by passenger trains .....	63,073
Miles run by freight trains .....	22,642
Miles run by other trains .....	19,750
Total miles run .....	105,465
Number of passengers carried in the cars .....	213,144
Number of passengers carried one mile .....	3,459 271
Number of tons of merchandize carried in the cars ..	116,197
Number of tons of merchandize carried one mile ..	229,394
Number of passengers carried one mile, to and from other roads .....	26,225
Number of tons carried one mile, to and from other roads .....	
Average rate of speed adopted for passenger trains, including stops .....	20 miles per hour.
Average rate of speed adopted for freight trains, including stops .....	12½ do.
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile .....	
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile .....	

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron ..	\$8,604 06
For repairs of truss bridges .....	
For renewals of iron, including laying down .....	
For wages of switch-men, gate-keepers and flag-men .....	
For removing ice and snow .....	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses .....	
Total for maintenance of way .....	8,604 06

## MOTIVE POWERS.

For repairs of locomotives .....	2,723 21
For new locomotives to cover depreciation .....	
For repairs of passenger cars .....	1,950 20
For new passenger cars to cover depreciation .....	
For repairs of merchandize cars .....	1,599 63
For new merchandize cars to cover depreciation ..	
For repairs of gravel and other cars .....	
Total for maintenance of motive power .....	6,273 14

## MISCELLANEOUS.

For fuel and oil .....	11,905 65
For salaries, wages and incidental expenses, chargeable to passenger department .....	12,049 50
For salaries, wages and incidental expenses, chargeable to freight department .....	5,959 69
For gratuities and damages .....	655 00
For taxes and insurance .....	210 50
For ferries .....	
For repairs of station building, aqueducts, fixtures, furniture .....	
For interest .....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company .....	
For amount paid other companies as rent for use of their roads, specifying each company .....	3,000, Worcester railroad.
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items .....	8,572 52

## INCOME DURING THE YEAR.

## For Passengers:

1. On the main road exclusively, including branch owned by company .....	101,857 64
2. To and from other roads, specifying what:	

## For Freight:

1. On main road and branches owned by company ..	20,403 95
2. To and from other connecting roads:	
U: S. mails, rents, and miscellaneous expenses .....	3,449 67
Total income .....	125,711 26
Net earnings after deducting expenses .....	68,481 20

## DIVIDENDS.

Surplus not divided .....	63,000 00
Surplus last year .....	5,481 20
Total surplus .....	5,481 20

## ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges .....	
Buildings .....	
Engines and cars .....	

Nathan Carruth, John Sever, Isaac L. Hedge, Jacob H. Loud, William Thomas, Josiah Quincy, Jr., Uriel Crocker.

Railroad to the Pacific.  
 SPEECH OF MR. WHITNEY.  
 (Continued from page 333.)

The last question is answered partly by the answer to the first, that the settlement which must take place, will, of itself, maintain it. And it will be seen that this will be the shortest, cheapest, and most direct route even from Europe to Asia, and all the Islands of the Pacific and Indian Oceans.

Mr. WHITNEY here exhibited a large skeleton map showing our exact position, in the centre of the world, with the Atlantic on one side, and the Pacific on the other side of us. Europe, with her population of 250,000,000, and Asia, with 700,000,000, this road to be the centre of, and thoroughfare for all. He, also, exhibited, and read tables of distances for the present route around the cape, and the distances for routes by proposed canals, all compared with this railroad, which tables are at foot. He, also, explained and described the importance of the commerce of Asia, China particularly, and showed conclusively that it may all be brought on this road. He, also, showed that the expenses of bringing teas and such-like goods from China to New York by this road, the lakes and our canal, would be as low as it now is by ship. He then said:—

The necessity for this road must be manifest to all, as the only means by which almost all the vast country through which it would pass can ever be settled, or made of use to mankind; and as the only means of connexion and intercourse with Oregon, on which subject I will read from the report of Senate's committee, page 13:—

"Another powerful consideration in favor of the proposed road the committee will advert to. It is the probability of the occurrence, that, as the Territory of Oregon, now so distant from us, fills up with an enterprising and industrious people from the several States, they will attract to them settlers from different parts of Europe, all wishing to share in the benefits of our free government, and claiming its protecting care, which cannot be enjoyed or bestowed in full measure, by reason of the difficulty of access by land and by water. A well grounded apprehension seems then to exist, that unless some means like the one proposed, of rapid communication with that region, be devised and completed, that country, soon to become a State of vast proportions and immense political importance, by reason of its position, its own wants, unattended to by this government, will be compelled to establish a separate government—a separate nation—with its cities, ports, and harbors, inviting all the nations of the earth to a free trade with them. From their position, they will control and monopolize the valuable fisheries of the Pacific, control the coast trade of Mexico, South America, and the Sandwich islands, and other islands of the Pacific, of Japan, of China, and of India, and become our most dangerous rival in the commerce of the world. In the opinion of the committee, this road will bind these two great geographical sections indissolubly together, to their mutual advantage, and be the cement of a union which time will but

render more durable, and make it the admiration of the world."

It has been objected that such a work cannot be built and carried on through a wilderness. I answer. If it was not a wilderness I could not have the only means, the lands, for such a work, and I propose to make the work itself change the wilderness, the waste, to cities, towns, villages, and richly cultivated fields. It is also objected, that our country is not old enough and without population to embark in an enterprise so vast. I answer. We have already about 8,000 miles of railroad in operation at a cost or outlay of about \$160,000,000; that our population is at this time 21,000,000, will double in twenty-two years, and if we have been able up to this time, with our small population and smaller means to complete the 8,000 miles, by the double of our population and consequent double of means, we shall be as able to double the miles of railroad; and the comparison is greatly in favor of the future, because many of our present railroads are exclusively means of travel, and have not developed sources of production and wealth. Our increase of population in twenty-two years would give for this road and the Pacific 11,000,000, and leave ten millions for the old State.

But let us see what we want for this road. I make my calculations, and predicate the whole upon the sale and settlement of the 800 miles of the first part; therefore this 800 miles by 60 miles wide, would give 30,720,000 acres. Now allow 160 acres for each family of 5 persons, and it would require 195,000 families, together 960,000 souls. It will require from the commencement five years to complete this 800 miles, (and 15 years the entire) and to sell and settle the 800 miles in 5 years would require per annum 38,400 families, or 192,000 souls; but as it is not necessary to sell and settle more than one half while the entire 800 miles is being built, 19,200 families, or 96,000 souls per annum is all that would be wanted, which is less than 1-7th of our now yearly increase of population; and only about half of what we may expect the yearly emigration from Europe during that period.

It has been my endeavor to show that this road can be built upon the plan I have proposed, and that the means which I have asked for will be made ample only by the road, and I hope I have not failed so to do. But there are other views and opinions to satisfy—there are those, who (perhaps without examination) think or fear, too much may be gained to those who may be interested with me in the work, that it may create much individual power, accumulate lands in individual hands, etc., etc. In answer, I say the land is now worth little or nothing; if of any value hereafter, that value would be derived from the road alone, and those who buy the land on its borders would receive all the benefit; that the lands must be sold and settled, or the road cannot be built; and as the government have 1,000,000,000 millions of acres, there could be no monopoly in sale; if the price demanded too high the lands

would not sell and the road not built; that lands cannot accumulate because the act will provide and fix the time of sale at public auction, and in lots of 40 to 160 acres. As to individual power that can never obtain, because at the will of the people Congress could at any time repeal the act, or make such enactments as would be necessary; and if its management at any time should operate to the disadvantage of the people, why, there could be but one voice against the many, and a change forced to take place. Benefit to myself—I have not undertaken this work with the expectation of benefit to myself; it will probably (if I succeed) require all my life, and were I to gain millions it could do me no good. I have undertaken it for the good of my country first, and after that all mankind, and think if I should live to see its accomplishment, I shall not be disappointed in its results; that it can be completed with the means proposed I am full well persuaded. I think I have examined the subject in all its bearings.

The road being built from the public lands, will, when done, be public property, and not subject to tolls beyond sufficient to keep in repairs and operation; and in order to attain the object we aim at, (to make it the thoroughfare for the commerce of all Asia) it will be necessary to keep it under one general management, so that its operation may be regular and punctual from one end to the other; which I should be directed by Congress, under individual management, the same as the building of the road: Therefore, I propose to keep it in repairs and operation, and I further propose to pay for all the lands at 16 cents per acre—subject to sale as directed by the Act of Congress fixing and regulating the tolls of the road at each session ever afterwards.

I might speculate upon the future, and predict what will be the vast results from the accomplishment of this great work; but it has been my object to give you a plain, simple statement, based upon facts only—and you can see all. The subject is before you. The field is open to the mind, and I think, plain to all. It will open to settlement and cultivation a wilderness more than 2500 miles in extent, giving it free intercourse and rapid communication with all the world. It will so extend agricultural production, and afford exchanges to sustain all other branches of industry, so that I may be almost allowed to say, it will give every man, woman and child the means to live if they will work. It will give us the means, and force the completion of the New York and Erie, the Pennsylvania, the Baltimore and Ohio, the Richmond and Ohio, and the Charleston roads, to Ohio, where they will all join in one, and run on to join this where it crosses the Mississippi, when the grand centre will be near the Missouri, when it will require but 2½ days to any city on the Atlantic, 2½ days to the Pacific, and 25 to any part of the Globe. Thus, we are brought together at the grand centre as one family in 2½ days, and the whole world to the same centre as one nation in 25 days. And it would carry with it from



Ocean to Ocean a belt of population 3400 miles in extent, with the same manners, habits, thoughts, actions, interests, yes, religion, the centre of, and grand thoroughfare for, all the world, a flood of light, life and liberty, which should spread over, enlighten and enliven the heathenism of all Asia.

*Comparison between voyages to be made through a proposed Canal at Nicaragua and those actually made via Cape Horn and the Cape of Good Hope.*

The following calculations are from the authority of Prof. Wittish, of the London University, and calculated from Plymouth, from New York for voyages around the Capes, would vary distance but little, but from New York to the proposed canal, would be 1500 to 2000 miles less:—

**To Valparaizo via Cape Horn.**  
 From Plymouth to the Canaries.....1,400  
 Thence to the region of Calms or 6 deg. N. lat. east of Cape de Verdes.....1,500  
 Thence to the Equator through the Calms....360  
 From the Equator to Cape Frio.....1,500  
 Thence to 40 deg. S. lat.....1,100  
 Thence to Statenland.....1,000  
 From its eastern cape to 60 deg. S. lat. and 65 deg. W. long. and around Cape Horn to 59 deg. W. long.....840  
 Thence to 60 deg. S. long. close to the meridian of 85 deg.....1,250  
 Thence to Valparaizo.....450

Requiring 100 to 117 days.....miles 9,400

**To Valparaizo, via the proposed Canal:—**  
 From Plymouth to 25 deg. N. lat. and 30 deg. W. long.....1,600  
 Thence to the straits between San Lucia and St. Vincent.....2,200  
 Thence to San Juan de Nicoragua.....1,400  
 Passage through the canal.....278  
 From Realejo to Guayaquil.....1,100  
 Thence to Callao.....900  
 Thence to Valparaizo.....1,500

Requiring 100 to 106 days.....miles 8,978

**To Sydney or Australia, via Cape of Good Hope:**

From Plymouth to the Equator, as before....3,260  
 From the Equator to the Island of Trinidad...1,220  
 Thence to the Cape north of Tristan d'Acunha 3,250  
 From the Cape to Bass' Straits between 38 and 40 deg. S. lat.....2,850  
 Thence to Sydney.....450

Requiring 120 to 133 days.....miles 14,030

**To Sydney or Australia, via the proposed Canal:**

From Plymouth to Realejo, through the Canal 5,478  
 Thence to Galapagos Island.....756  
 Thence past the Marquesas to 150 deg. W. long.....3,600  
 Thence to 180 deg. W. long. and 28 deg. S. lat. through the Island.....2,000  
 Thence to Sydney.....2,000

Requiring 105 days.....miles 13,528

From Sydney to Eng., via Cape Horn...13,848 136  
 " " " via Canal.....14,848 138

**To Canton (China) via Cape of Good Hope, during northeast monsoon:—**

From Plymouth to the Cape as before.....7,730  
 Thence past the island of St. Paul's to 110 E. L. and 32 S. L.....4,620  
 Thence to Allas Straits between Lombock and Sumbama.....1,560  
 Thence to Pitt's Straits.....1,230  
 Thence to Pellew Islands.....540  
 Thence to Ballinglang Straits.....600  
 Thence to Canton.....600

Requiring 120 to 150 days.....miles 16,880

**To Canton, via the proposed Canal north-east monsoon:—**

From Plymouth to Realejo through the canal 5,478  
 Thence to Canton between 10 and 20 N. L. through Formosa Straits.....10,360

Requiring 111 days.....miles 15,838

**Homeward, Canton to England, via Cape Good Hope:—**

During southwest monsoon...14,910..110 to 130 days.  
 do to do via Canal S. W. do. 15,558..129 days.

**To Singapore, via the Cape of Good Hope, during southeast monsoon:—**

From Plymouth to the Cape as before.....7,730  
 Thence to Auger Point in Sunda Straits.....6,050  
 Thence to Singapore.....560

Requiring 100 to 130 days.....miles 14,350

**To Singapore, via the proposed canal, during such southeast monsoon:—**

From Plymouth to Realejo through the canal...5,478  
 Thence to the Ladrone.....8,600  
 Thence to Pitt's Straits.....680  
 Thence to Gasper Straits.....2,600  
 Thence to Singapore.....380

Requiring 110 to 130 days.....miles 17,739

**To Singapore, via the Cape, N. E. monsoon, 14,350, 100 to 130 days.**

**To Singapore, via the canal, N. E. monsoon, 16,578, 100 to 117 days.**

The following sailing distances were calculated by Lieut. Maury, at the United States Observatory, Washington:—The distance from New York by proposed railroad to the Pacific is estimated at 3,400 miles, but will probably fall short of that distance. Sixteen miles per hour for freight and thirty for passengers, with one day for delays, is estimated for the railroad, and twelve miles per hour for steamers in the Pacific, etc. with ample time for coaling, detention, etc. In estimating for sail vessels, the freight time on the road is taken.

To calculate from England, 3,000 miles distance, and thirty days for sail and ten for steamers is to be added.

From New York by railroad to Columbia river or to San Francisco, 3,400 miles, eight days for freight, five and a half days for passengers.

**To Japan, via Railroad to the Pacific.**

To the Pacific, as before...3,400 8 54  
 Thence to Japan.....4,000 30 to 35 144

7,400 miles 43 sail 30 steam.

**To Chang-hai in China, at the mouth of the great Yang-tse-keang, which at a short distance from its mouth crosses the great canal at Peking, and where all the commerce of the vast Empire of China centres, and where all the foreign commerce (when this road is opened) will be carried on, is from N. York to the Pacific, as before,**

3,400 8 54  
 Thence to Chang-hai 5,400 35 to 40 90

8,800 miles. 49 sail. 25 steam.

The distance to Canton would be 800 miles greater.

**To Austria, via the proposed railroad.**

From N. Y. to Pacific, as before.....3,400 8 54  
 Thence to Austria, via Sandwich Islands.....6,000 40 22

9,400 mls. 48 sail. 274 steam.

**To Singapore, via the proposed Railroad:**

From N. Y. to Pacific, as before.....3,400 8 54  
 Thence to Singapore, via the Ladrone and other Islands.....6,660 50 25

10,060 mls. 58 sail. 304 steam.

All the commerce of the Pacific and Indian Oceans may be carried on in steamers from Oregon, because the steamers could be supplied with fuel (coal) from Oregon, (Vancouver's Island particularly) Japan, China, as low down as Formosa and Australia. But for any other route the fuel (coal) must be taken from England or the Northern States, and the long voyages to China, to Australia and Singapore would require fuel beyond the capacity to carry.

#### ITEMS.

**New Fashioned Railroad.**—M. Audrand, an individual well known in Paris for his unremitting exertions, for the last seven years, to perfect a system of railroad travelling by means of compressed air, seems at length in a fair way to succeed, he has laid down a way 100 yards long, upon which a carriage, built for the purpose, is impelled, upon his new principle, with an ease and smoothness heretofore not attained on the ordinary railroads. There is no locomotive necessary to move it, inasmuch as this is accomplished through a tube laid in the centre of the road, with a pipe by its side, which keeps up the motive power. This system, the inventor undertakes to show, is vastly preferable in all respects, to that of the atmospheric. It combines all of its advantages, while it is subject to none of its imperfections. It unites entire safety with the capacity to run 15 to 50 miles per hour. The cost of keeping it in motion is stated to be less than one-half of that of engine-propelled carriages. We can place but little confidence in the invention, however, without having some definite description of its peculiarities of construction.

**Iron Trade of America.**—There are no data by which we can ascertain the quantity of iron produced in the United States, prior to 1810. At that time, according to the official returns, the quantity of bar iron made in this country was 24,471 tons, then valued at \$2,640,778, of which 10,969 tons were made in Pennsylvania. From that time to 1830, the quantity had increased to 112,866 tons; in addition to which, 25,250 tons of castings were also made—the value of both amounted to \$13,323,760; in making this quantity 29,254 men were employed, and 146,273 subsisted, whose annual wages amounted to \$8,776,420, and that in their support the farmer furnished food to the value of 4,000,400 dollars.

The average quantity of hammered iron imported into the United States from 1821 to 1830, was about 26,200 tons annually, and of rolled iron about 5600 tons—making, together, 31,800 tons, and valued at 1,762,000 dollars.

The whole quantity of hammered and rolled iron consumed in the United States in 1830, may be estimated at about 144,666 tons.—

Railroad to the Pacific.  
 SPEECH OF MR. WHITNEY.  
 (Continued from page 333.)

The last question is answered partly by the answer to the first, that the settlement which must take place, will, of itself, maintain it. And it will be seen that this will be the shortest, cheapest, and most direct route even from Europe to Asia, and all the Islands of the Pacific and Indian Oceans.

Mr. WHITNEY here exhibited a large skeleton map showing our exact position, in the centre of the world, with the Atlantic on one side, and the Pacific on the other side of us. Europe, with her population of 250,000,000, and Asia, with 700,000,000, this road to be the centre of, and thoroughfare for all. He, also, exhibited, and read tables of distances for the present route around the cape, and the distances for routes by proposed canals, all compared with this railroad, which tables are at foot. He, also, explained and described the importance of the commerce of Asia, China particularly, and showed conclusively that it may all be brought on this road. He, also, showed that the expenses of bringing teas and such-like goods from China to New York by this road, the lakes and our canal, would be as low as it now is by ship. He then said:—

The necessity for this road must be manifest to all, as the only means by which almost all the vast country through which it would pass can ever be settled, or made of use to mankind; and as the only means of connexion and intercourse with Oregon, on which subject I will read from the report of Senate's committee, page 13:—

"Another powerful consideration in favor of the proposed road the committee will advert to. It is the probability of the occurrence, that, as the Territory of Oregon, now so distant from us, fills up with an enterprising and industrious people from the several States, they will attract to them settlers from different parts of Europe, all wishing to share in the benefits of our free government, and claiming its protecting care, which cannot be enjoyed or bestowed in full measure, by reason of the difficulty of access by land and by water. A well grounded apprehension seems then to exist, that unless some means like the one proposed, of rapid communication with that region, be devised and completed, that country, soon to become a State of vast proportions and immense political importance, by reason of its position, its own wants, unattended to by this government, will be compelled to establish a separate government—a separate nation—with its cities, ports, and harbors, inviting all the nations of the earth to a free trade with them. From their position, they will control and monopolize the valuable fisheries of the Pacific, control the coast trade of Mexico, South America, and the Sandwich islands, and other islands of the Pacific, of Japan, of China, and of India, and become our most dangerous rival in the commerce of the world. In the opinion of the committee, this road will bind these two great geographical sections indissolubly together, to their mutual advantage, and be the cement of a union which time will but

render more durable, and make it the admiration of the world."

It has been objected that such a work cannot be built and carried on through a wilderness. I answer. If it was not a wilderness I could not have the only means, the lands, for such a work, and I propose to make the work itself change the wilderness, the waste, to cities, towns, villages, and richly cultivated fields. It is also objected, that our country is not old enough and without population to embark in an enterprise so vast. I answer. We have already about 8,000 miles of railroad in operation at a cost or outlay of about \$160,000,000; that our population is at this time 21,000,000, will double in twenty-two years, and if we have been able up to this time, with our small population and smaller means to complete the 8,000 miles, by the double of our population and consequent double of means, we shall be as able to double the miles of railroad; and the comparison is greatly in favor of the future, because many of our present railroads are exclusively means of travel, and have not developed sources of production and wealth. Our increase of population in twenty-two years would give for this road and the Pacific 11,000,000, and leave ten millions for the old State.

But let us see what we want for this road. I make my calculations, and predicate the whole upon the sale and settlement of the 800 miles of the first part; therefore this 800 miles by 60 miles wide, would give 30,720,000 acres. Now allow 160 acres for each family of 5 persons, and it would require 195,000 families, together 960,000 souls. It will require from the commencement five years to complete this 800 miles, (and 15 years the entire) and to sell and settle the 800 miles in 5 years would require per annum 38,400 families, or 192,000 souls; but as it is not necessary to sell and settle more than one half while the entire 800 miles is being built, 19,200 families, or 96,000 souls per annum is all that would be wanted, which is less than 1-7th of our now yearly increase of population; and only about half of what we may expect the yearly emigration from Europe during that period.

It has been my endeavor to show that this road can be built upon the plan I have proposed, and that the means which I have asked for will be made ample only by the road, and I hope I have not failed so to do. But there are other views and opinions to satisfy—there are those, who (perhaps without examination) think or fear, too much may be gained to those who may be interested with me in the work, that it may create much individual power, accumulate lands in individual hands, etc., etc. In answer, I say the land is now worth little or nothing; if of any value hereafter, that value would be derived from the road alone, and those who buy the land on its borders would receive all the benefit; that the lands must be sold and settled, or the road cannot be built; and as the government have 1,000,000,000 millions of acres, there could be no monopoly in sale; if the price demanded too high the lands

would not sell and the road not built; that lands cannot accumulate because the act will provide and fix the time of sale at public auction, and in lots of 40 to 160 acres. As to individual power that can never obtain, because at the will of the people Congress could at any time repeal the act, or make such enactments as would be necessary; and if its management at any time should operate to the disadvantage of the people, why, there could be but one voice against the many, and a change forced to take place. Benefit to myself—I have not undertaken this work with the expectation of benefit to myself; it will probably (if I succeed) require all my life, and were I to gain millions it could do me no good. I have undertaken it for the good of my country first, and after that all mankind, and think if I should live to see its accomplishment, I shall not be disappointed in its results; that it can be completed with the means proposed I am full well persuaded. I think I have examined the subject in all its bearings.

The road being built from the public lands, will, when done, be public property, and not subject to tolls beyond sufficient to keep in repairs and operation; and in order to attain the object we aim at, (to make it the thoroughfare for the commerce of all Asia) it will be necessary to keep it under one general management, so that its operation may be regular and punctual from one end to the other; which I should be directed by Congress, under individual management, the same as the building of the road: Therefore, I propose to keep it in repairs and operation, and I further propose to pay for all the lands at 16 cents per acre—subject to sale as directed by the Act of Congress fixing and regulating the tolls of the road at each session ever afterwards.

I might speculate upon the future, and predict what will be the vast results from the accomplishment of this great work; but it has been my object to give you a plain, simple statement, based upon facts only—and you can see all. The subject is before you. The field is open to the mind, and I think, plain to all. It will open to settlement and cultivation a wilderness more than 2500 miles in extent, giving it free intercourse and rapid communication with all the world. It will so extend agricultural production, and afford exchanges to sustain all other branches of industry, so that I may be almost allowed to say, it will give every man, woman and child the means to live if they will work. It will give us the means, and force the completion of the New York and Erie, the Pennsylvania, the Baltimore and Ohio, the Richmond and Ohio, and the Charleston roads, to Ohio, where they will all join in one, and run on to join this where it crosses the Mississippi, when the grand centre will be near the Missouri, when it will require but 2½ days to any city on the Atlantic, 2½ days to the Pacific, and 25 to any part of the Globe. Thus, we are brought together at the grand centre as one family in 2½ days, and the whole world to the same centre as one nation in 25 days. And it would carry with it from



Ocean to Ocean a belt of population 3400 miles in extent, with the same manners, habits, thoughts, actions, interests, yes, religion, the centre of, and grand thoroughfare for, all the world, a flood of light, life and liberty, which should spread over, enlighten and enliven the heathenism of all Asia.

*Comparison between voyages to be made through a proposed Canal at Nicaragua and those actually made via Cape Horn and the Cape of Good Hope.*

The following calculations are from the authority of Prof. Wittish, of the London University, and calculated from Plymouth, from New York for voyages around the Capes, would vary distance but little, but from New York to the proposed canal, would be 1500 to 2000 miles less:—

To Valparaizo via Cape Horn.	
From Plymouth to the Canaries.....	1,400
Thence to the region of Calms or 6 deg. N. lat. east of Cape de Verds.....	1,500
Thence to the Equator through the Calms.....	360
From the Equator to Cape Frio.....	1,500
Thence to 40 deg. S. lat.....	1,100
Thence to Statenland.....	1,000
From its eastern cape to 60 deg. S. lat. and 65 deg. W. long. and around Cape Horn to 89 deg. W. long.....	840
Thence to 60 deg. S. long. close to the meridian of 85 deg.....	1,250
Thence to Valparaizo.....	450

Requiring 100 to 117 days.....miles 9,400

To Valparaizo, via the proposed Canal:—	
From Plymouth to 25 deg. N. lat. and 30 deg. W. long.....	1,600
Thence to the straits between San Lucia and St. Vincent.....	2,200
Thence to San Juan de Nicoragua.....	1,400
Passage through the canal.....	278
From Realejo to Guayaquil.....	1,100
Thence to Callao.....	900
Thence to Valparaizo.....	1,500

Requiring 100 to 106 days.....miles 8,978

To Sydney or Australia, via Cape of Good Hope:	
From Plymouth to the Equator, as before.....	3,260
From the Equator to the Island of Trinidad.....	1,220
Thence to the Cape north of Tristan d'Acunha.....	3,250
From the Cape to Bass' Straits between 38 and 40 deg. S. lat.....	2,850
Thence to Sydney.....	450

Requiring 120 to 133 days.....miles 14,030

To Sydney or Australia, via the proposed Canal:	
From Plymouth to Realejo, through the Canal.....	5,478
Thence to Galapagos Island.....	756
Thence past the Marquesas to 150 deg. W. long.....	3,600
Thence to 180 deg. W. long. and 28 deg. S. lat. through the Island.....	2,000
Thence to Sydney.....	2,000

Requiring 105 days.....miles 13,528

From Sydney to Eng., via Cape Horn.....	13,848	136
" " " via Canal.....	14,848	138

To Canton (China) via Cape of Good Hope, during northeast monsoon:—	
From Plymouth to the Cape as before.....	7,730
Thence past the island of St. Paul's to 110 E. L. and 32 S. L.....	4,620
Thence to Allas Straits between Lombeck and Sumbana.....	1,560
Thence to Pitt's Straits.....	1,230
Thence to Pellew Islands.....	540
Thence to Ballinglang Straits.....	600
Thence to Canton.....	600

Requiring 120 to 150 days.....miles 16,880

To Canton, via the proposed Canal north-east monsoon:—

From Plymouth to Realejo through the canal.....	5,478
Thence to Canton between 10 and 20 N. L. through Formosa Straits.....	10,360

Requiring 111 days.....miles 15,838

Homeward, Canton to England, via Cape Good Hope:—

During southwest monsoon..14,910.110 to 130 days. do to do via Canal S. W. do. 15,558..129 days.

To Singapore, via the Cape of Good Hope, during southeast monsoon:—

From Plymouth to the Cape as before.....	7,730
Thence to Auger Point in Sunda Straits.....	6,050
Thence to Singapore.....	560

Requiring 100 to 130 days.....miles 14,350

To Singapore, via the proposed canal, during such southeast monsoon:—

From Plymouth to Realejo through the canal.....	5,478
Thence to the Ladrone.....	8,600
Thence to Pitt's Straits.....	680
Thence to Gaspar Straits.....	2,600
Thence to Singapore.....	380

Requiring 110 to 130 days.....miles 17,739

To Singapore, via the Cape, N. E. monsoon, 14,350, 100 to 130 days.

To Singapore, via the canal, N. E. monsoon, 16,578, 100 to 117 days.

The following sailing distances were calculated by Lieut. Maury, at the United States Observatory, Washington:—The distance from New York by proposed railroad to the Pacific is estimated at 3,400 miles, but will probably fall short of that distance. Sixteen miles per hour for freight and thirty for passengers, with one day for delays, is estimated for the railroad, and twelve miles per hour for steamers in the Pacific, etc. with ample time for coaling, detention, etc. In estimating for sail vessels, the freight time on the road is taken.

To calculate from England, 3,000 miles distance, and thirty days for sail and ten for steamers is to be added.

From New York by railroad to Columbia river or to San Francisco, 3,400 miles, eight days for freight, five and a half days for passengers.

To Japan, via Railroad to the Pacific.

To the Pacific, as before.....	3,400	8	5½
Thence to Japan.....	4,000	30 to 35	14½
	7,400 miles	43 sail	20 steam.

To Chang-hai in China, at the mouth of the great Yang-tse-keang, which at a short distance from its mouth crosses the great canal at Pekin, and where all the commerce of the vast Empire of China centres, and where all the foreign commerce (when this road is opened) will be carried on, is from N. York to the Pacific, as before,

	3,400	8	5½
Thence to Chang-hai.....	5,400	35 to 40	20

8,800 miles. 48 sail. 25 steam.

The distance to Canton would be 800 miles greater.

To Austria, via the proposed railroad.

From N. Y. to Pacific, as before.....	3,400	8	5½
Thence to Austria, via Sandwich Islands.....	6,000	40	22

9,400 mls. 48 sail. 27½ steam.

To Singapore, via the proposed Railroad:

From N. Y. to Pacific, as before.....	3,400	8	5½
Thence to Singapore, via the Ladrone and other Islands.....	6,660	50	25
	10,060 mls.	58 sail.	30½ steam.

All the commerce of the Pacific and Indian Oceans may be carried on in steamers from Oregon, because the steamers could be supplied with fuel (coal) from Oregon, (Vancouver's Island particularly) Japan, China, as low down as Formosa and Australia. But for any other route the fuel (coal) must be taken from England or the Northern States, and the long voyages to China, to Australia and Singapore would require fuel beyond the capacity to carry.

#### ITEMS.

*New Fashioned Railroad.*—M. Audrand, an individual well known in Paris for his unremitting exertions, for the last seven years, to perfect a system of railroad travelling by means of compressed air, seems at length in a fair way to succeed, he has laid down a way 100 yards long, upon which a carriage, built for the purpose, is impelled, upon his new principle, with an ease and smoothness heretofore not attained on the ordinary railroads. There is no locomotive necessary to move it, inasmuch as this is accomplished through a tube laid in the centre of the road, with a pipe by its side, which keeps up the motive power. This system, the inventor undertakes to show, is vastly preferable in all respects, to that of the atmospheric. It combines all of its advantages, while it is subject to none of its imperfections. It unites entire safety with the capacity to run 15 to 50 miles per hour. The cost of keeping it in motion is stated to be less than one-half of that of engine-propelled carriages. We can place but little confidence in the invention, however, without having some definite description of its peculiarities of construction.

*Iron Trade of America.*—There are no data by which we can ascertain the quantity of iron produced in the United States, prior to 1810. At that time, according to the official returns, the quantity of bar iron made in this country was 24,471 tons, then valued at \$2,640,778, of which 10,969 tons were made in Pennsylvania. From that time to 1830, the quantity had increased to 112,866 tons; in addition to which, 25,250 tons of castings were also made—the value of both amounted to \$13,323,760; in making this quantity 29,254 men were employed, and 146,273 subsisted, whose annual wages amounted to \$8,776,420, and that in their support the farmer furnished food to the value of 4,000,490 dollars.

The average quantity of hammered iron imported into the United States from 1821 to 1830, was about 26,200 tons annually, and of rolled iron about 5600 tons—making, together, 31,800 tons, and valued at 1,762,000 dollars.

The whole quantity of hammered and rolled iron consumed in the United States in 1830, may be estimated at about 144,666 tons.—

The value of the various foreign manufactures of iron consumed in this country, on an average, from 1821 to 1830, was about 4,000,000 dollars yearly, making the whole amount of foreign iron and it manufactures annually consumed in the United States, say 5,762,000 dollars. If the whole quantity made in the United States in 1830, were computed in pig iron, it would amount to 191,736 tons—produced from 239 furnaces, averaging fifteen and a half tons each furnace per week—two-fifths of this quantity were made in Pennsylvania. The quantity made in all the States in 1837 may be fairly taken at 250,000 tons.—*Scribner's History of the Iron Trade.*

**Improved Vertical Water Wheel.**—Of the numerous recent improvements, or at least variations and modifications of water wheels, nineteen-twentieths of them have been on horizontal motions while the vertical motion—which is in most general use—has been comparatively overlooked. But we have recently examined the plan of a vertical wheel invented by Mr. W. C. Burbank, of Flatbush, N. Y., which appears likely to supersede to great extent, both the overshot and breast wheel for heavy water powers. The plan is decidedly novel and will evidently give more power, by five or ten per cent. than the overshot. We had thought of procuring an engraving, but that not being immediately convenient, we shall attempt a brief description without it. This may be called the vertical drum wheel, the periphery being close and without any appearance of buckets. It has a second close drum periphery within the first, from 10 to 20 inches distant, according to the quantity of water to be used. Between these two peripheries are arranged a series of buckets, constructed in the form of a V, with the angle in the centre. The space between the buckets is open at the sides of the wheel, and the water is supplied and discharged through these open spaces on both sides. Of course, whatever momentum there may be in the feeding current, is exerted on the wheel, and the water cannot escape till it reaches the lowest point of the circle, and then leaves the wheel freely, and without resistance.—*N. Y. Farmer and Mechanic.*

**Hydraulic Invention.**—A Mr. Steele, of Swansea, England, has invented a valve pipe for the purpose of trying whether as in the method in which our blood circulates, water can be raised to any height from the power of waves exerted upon a surface of water.—That this method will be useless for practical purposes, we have no doubt, as the power required to make the waves that would raise the water to any given height, would be far more economically expended by the force pump.

**American Iron.**—The Rochester Democrat states that iron was first made in this country in 1715, in Virginia. In Orange County, New York, a furnace was erected in 1751, and 1500 tons of pig, and 1000 tons of bar made annually. The great iron chain that crossed the Hudson river during the revolution, each link of which weighed 140 pounds, was made there. Peter Townsend made the first cannon there in 1816.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

## MISSING NUMBERS OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**NOTICE TO CONTRACTORS.—ANDROSCOGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Androscoggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June.

Satisfactory securities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston, May 8, 1847. 4t21

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD.**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Masonry and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,

T. FOLLETT, President.  
Office of the C. & C. R. R. Co.,  
Burlington, Vt., April 29, 1847. 3t20



THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.  
West Troy, May 12, 1847. 1y+21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia. 12t

**RAILROAD IRON.—THE "MONTGOMERY" Iron Company,** Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.  
1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 33 1y

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

## LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa. 4t

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent.  
No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 10t39

## RAILWAY IRON.—DAVIS, BROOKS

& CO., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46t

## TO CONTRACTORS.—KENNEBEC AND

PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.  
ENGINEERS OFFICE, K. & P. R. R.,  
Brunswick, Me., April 6, 1847. 1m16

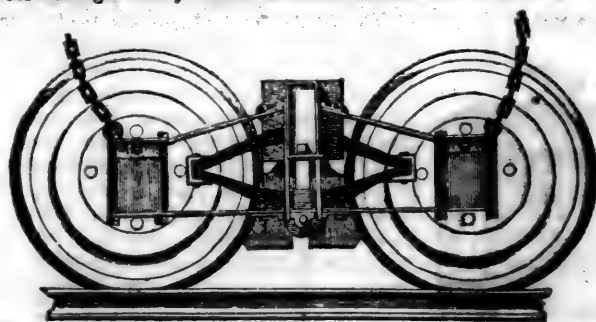
## THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
New York. 1y10



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, }

[Signed.] JOHN LEACH,

Jamaica November 12, 1845. }

1y19 Sup't Motive Power.

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
Jan. 2. [1lf] 68 Broad St., New York.

## RAILROAD SCALES.—THE ATTEN-

tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,  
245 N. E. cor. 19th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,  
45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
79 Water St., New York.

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

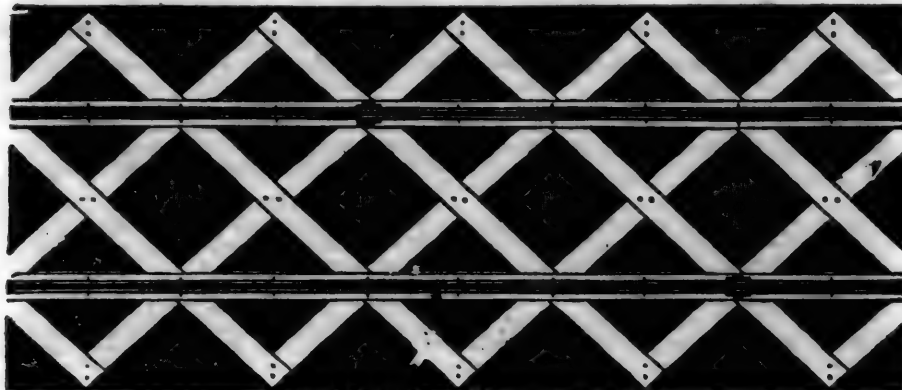


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,324 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

ENGINEERS' AND SURVEYORS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**

No 23 Pear street, 1y10 near Third, 180 below Walnut, Philadelphia.

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

**THIS** Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**  
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

### ENGINEERS and MACHINISTS.

**THOMAS PROSSER,** 28 Platt St. N. Y. (See Adv.)

**J. F. WINSLOW,** Albany Iron and Nail Works Troy, N. Y. (See Adv.)

**TROY IRON AND NAIL FACTORY,** H. Burden, Agent. (See Adv.)

**ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J. (See Adv.)

**S. VAIL,** Speedwell Iron Works, near Morristown, N. J. (See Adv.)

**NORRIS, BROTHERS,** Philadelphia Pa. (See Adv.)

**FRENCH & BAIRD,** Philadelphia. (See Adv.)

**NEWCASTLE MANUFACTURING COMPANY,** Newcastle, Del. (See Adv.)

**ROSS WINANS,** Baltimore, Md.

**CYRUS ALGER & Co.,** South Boston Iron Co.

**SETH ADAMS,** Engineer, South Boston.

**STILLMAN, ALLEN & Co.,** N. Y.

**JAS. P. ALLAIRE,** N. Y.

**PHENIX FOUNDRY,** N. Y.

**ANDREW MENEELY,** West Troy.

**JOHN F. STARR,** Philadelphia, Pa.

**MERRICK & TOWNE,** do.

**HINCKLEY & DRURY,** Boston.

**C. C. ALGER,** Stockbridge Iron Works Stockbridge, Mass.



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 23]

SATURDAY, JUNE 5, 1847.

[WHOLE No. 572, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut-Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD and STAGES CONNECTION with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woburn. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger-Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and	\$3.00
" " Reading, 58		2.25 and	1.90
" " Pottsville, 34		1.40 and	1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8½

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 3 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

35ly

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

SUMMER ARRANGEMENT, April 1, 1847.

### PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

### GREAT FALLS TRAIN.

Leave Boston at 5 P.M.

Leave Great Falls at 6½ A.M.

### HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.

Leave Haverhill at 6½ A.M. and 1½ P.M.

### READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.

Leave Reading at 6 A.M. and 1½ P.M.

### MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 3½, 5½, 7 P.M.

Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Super't.

## SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April

1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

### FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.

" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED TO \$1.25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

### FOR FREIGHT—

Leave New York at 5 P.M.

" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of Hours. Commencing on

Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday. Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't.

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	\$1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 14 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

471f W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD. MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 131y1

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

**BALTIMORE AND SUSQUEHANNA Railroad.**—Reduction of Fare, Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3½ p.m. Arrives at.....9 a.m. and 6½ p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12½ p.m. and 8 p.m. Leaves York for Columbia at.....1½ p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	\$1 50
" Wrightsville	2 00
" Columbia	2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5½ p.m. Returning, leaves Owning's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

Ticket Office, 63 North st.

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—  
On weight goods generally.....50 cts. per hundred.  
On measurement goods.....13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime)....80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.  
On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.  
Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 43d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train], 2 30 p.m. 5 p.m. to Morrisania only.

Leave City Hall for Harlem, Morrisania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

**RETURNING.**

Leave Pleasantville, at 8, 10, [freight train], and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 40, 4, and 4 50 p.m.

Leave Morrisania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

**SUNDAY ARRANGEMENTS.**

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.****Summer Arrangement.**

Philadelphia for Baltimore...8 a.m. and 10 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. } No line on Sun-Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

Engineer and General Superintendent.

**GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaule River, in Cass Co., Georgia.

**RATES OF FREIGHT.**

	Between Augusta and Oothcaloga and Dalton. 350 miles.	Between Charleston, Oothcaloga and Dalton. 388 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
Cotton, per 100 lbs.....	0 45	0 65
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 00	3 25
Salt per bushel.....	0 17	
Salt per Liverpool sack.....		95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 3 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,

Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846.

44 1y

**THE WESTERN AND ATLANTIC Railroad.**—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

1y1



**CENTRAL AND MACON AND WESTERN**  
ern Railroads, Ga.—These Roads with the  
Western and Atlantic Railroad  
of the State of Georgia, form a  
continuous line from Savannah to Oothcaloga, Ga.,  
of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic.. 80  
Goods will be carried from Savannah to Atlanta  
and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62 1/2
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large), Cultivators, Corn Shellers, and Straw Cutters, each.....	1 35	1 50
Ploughs, (small), and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 13 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE! VIA**  
Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14  
STOCTON & FALLS, Agents.

**SOUTH CAROLINA RAILROAD.**—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y26 JOHN KING, Jr, Agent.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

## FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

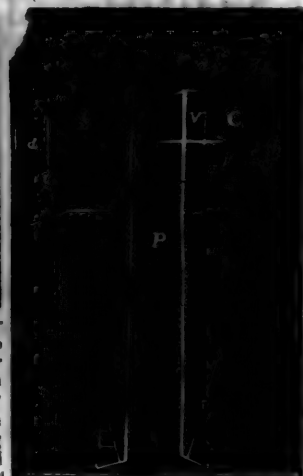
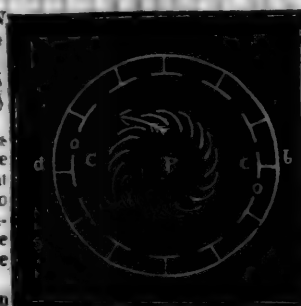
**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.  
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
445 Paterson, N. J., or 60 Wall street, N. York. 1y



**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

**SPRING STEEL FOR LOCOMOTIVES,**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of.

The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**LITTLE MIAMI RAILROAD.—OPEN**  
TO SPRINGFIELD—Distance 84 miles—  
connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Henton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:  
Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon....\$1 00  
" " " Xenia..... 1 50  
" " " Springfield.. 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 14 P. M. train from Cincinnati, and the 9 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
4741 W. H. CLEMENT, Supt.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore

more every morning at 7½ and 10 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 54 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 13 at night from Baltimore and at 6 A. M. and 54 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
JOHN A. ROEBLING, Civil Engineer,  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v191y

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

#### FARE.

Fare to York.....\$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12½

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....54 p.m.  
Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Supt.  
Ticket Office, 63 North st.  
31 1y

**CENTRAL RAILROAD—FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhds. and pipes of liquor, not over 190 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Supt. Transportation.

**NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.**

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 49th street, Deaf and Dumb Institute, Yorkville, Harlem Morrisiana, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train], 2 30 p.m. 5 p.m. to Morrisiana only.

Leave City Hall for Harlem, Morrisiana, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing], 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

#### RETURNING.

Leave Pleasantville, at 6, 10, [freight train], and 11 a.m.; 1 30, and 4 p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20 p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train], and 11 35 a.m.; 2 05, and 4 35 p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 40, 4, and 4 50 p.m.

Leave Morrisiana 8 and 9 05 a.m.; 12 05, 2 35, 4 30, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

#### SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

#### Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

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Ch. Eng. and Gen. Agent.

Augusta, Sept. 2d, 1846.

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CHAS. F. M. GARNETT,  
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Atlanta, Georgia, April 16th, 1846.

1y1



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These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

\*. The letters in the figures refer to the article given in the Journal of June, 1844. ja45

## PATENT HAMMERED RAILROAD, SHIP

and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 3 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

## MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

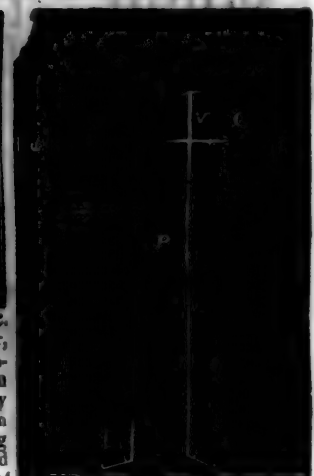
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, ja45 Patterson, N. J., or 60 Wall street, N. York. 1y



## PATENT RAILROAD, SHIP AND BOAT

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\*. Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

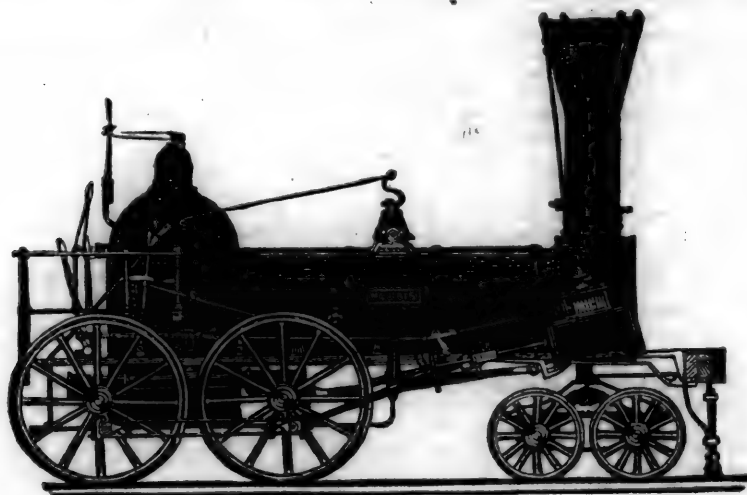
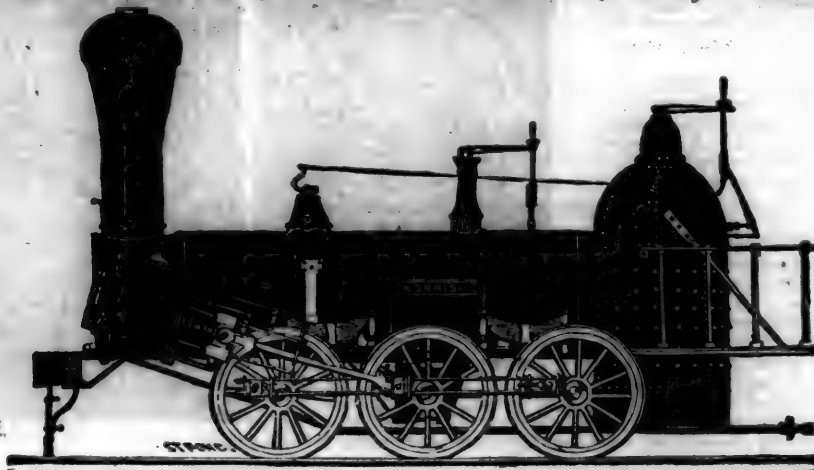
## SPRING STEEL FOR LOCOMOTIVES,

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent, ja45 Albany Iron and Nail Works,

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FRIE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worcester. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
35,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON, 4 South Front St., Philadelphia. Mar. 20th

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x33 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 3500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by MORRIS, TASKER & MORRIS, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.

This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28tf

J. BALL & CO.



**Cincinnati and St. Louis Railroad.**

The following highly interesting article, is communicated to the *Cincinnati Gazette*, by a correspondent, who is evidently well acquainted with the interests of the West. Although his views upon some points may not be in unison with those entertained by some others, yet we give place to the article, because it contains many facts of general interest. The writer says:

It is known to the readers of your paper that important movements have been had, at many places interested, within the last few months, towards effecting a connection by railroad, between Cincinnati and St. Louis. Until the unexpected refusal of the right of way through Illinois by her Legislature, no serious obstacle was anticipated to the immediate execution of this enterprise, which, from its projecting, enlisted the co-operation of so many enterprising men of both cities and along its contemplated route, that there seemed no reason to doubt its speedy achievement. But the interest of St. Louis and the State of Illinois in the immediate commencement of this work being thus cut off, it becomes a question whether sufficient remain to carry out a part of the original intention. This claims the more consideration now, because a convention, called to decide on the steps to be taken, will convene in a short time at Indianapolis, where matters will be submitted and determined, that must greatly affect the growth and prosperity of Cincinnati, for a series of years, if not for all time to come. This will be my excuse for attempting to direct the attention of the capitalists and business men of that city to this project, which though a subject of deep interest to a portion of Indiana, is one of paramount importance to Cincinnati.

Upwards of twenty years ago, the States of New York and Pennsylvania commenced a contest for the western trade, respectively under the guidance of De Witt Clinton and Dr. Lehman, and directed their efforts to this end towards effecting a communication by canals with the western waters. For several years after it began, no other States seemed disposed to enter the lists with them to compete for this prize. So distrustful, however, were many leading men of both States, as to the benefits promised by these undertakings, that they struggled through great opposition, and that of Pennsylvania only succeeded finally, by being encumbered with expensive branches; adjuncts permitted by its friends in order to bring collateral interests to secure the accomplishment of their main purpose. Chiefly from this cause the early friends of the Pennsylvania Canal have failed to realize their exalted anticipations; while those of the New York and Erie Canal found theirs exceeded, by the immense business which has crowded this work since its completion. This partial success on the part of Pennsylvania, during the first years in which these two canals were in operation, she hoped to render complete through the advantages given her over New York by the more extended term in which her canal would be annually navigable; but before the full effect of this could be tested by experience, both States were compelled to compete for this trade, on

disadvantageous terms, with other improvements projected from quarters, which, by geographical position, were supposed to be wholly precluded from entertaining any such pretensions. Unforeseen improvements of engines, by which those weighing many tons are made to pass over railroads without injury to them, and with augmented power and speed, has demonstrated the superior adaptation of these to all the purposes of travel and transport. Yankee sagacity was soon perceived availing itself of these improvements, to attract to Boston a portion of the wealth that was pouring into New York as the result of her enterprise; and the Western railroad is constructed at great expense for this purpose, which it fulfils to the great injury of New York City, in depriving her of a large share of the Lake trade.

In the meantime Pennsylvania is driven from the study of latitude and topography, to the adoption of more efficient means to retain a trade to which she had claimed a natural right to give direction, and which she saw centreing at Baltimore over the Baltimore and Ohio Railroad, instead of at Philadelphia over her own improvements, and for this purpose has resolved upon having a speedy connection by railroad between Philadelphia and Pittsburgh. The completion of some and the advanced state of others of the thoroughfares designed to appropriate western trade allows, as well as encourages, a modified policy on the part of those engaged in them, and the Western States are beginning to profit by the rivalry existing and increasing among these various works. The foregoing development of these successive movements reveals a position of affairs from which can be better understood the motives and purposes of those who are influential in directing the efforts at present making jointly, by many eastern and western states to mark out the channels through which the commerce of particular districts of country shall flow. Eastern capital is seeking investment in Western improvements, with the view of shaping their course so as to direct their traffic to particular cities on the Atlantic; and so as to make it answer the double purpose in its transit thither, of yielding a handsome return where invested, and augmenting the revenues of other and more important thoroughfares. It is to the especial influence which this state of circumstances is exerting over the commercial operations of Indiana, that I propose to invite the consideration of the citizens of Cincinnati.

Indiana is just recovering from the exhaustion, which succeeded the shock that she, in common with the country at large, sustained a few years ago in her financial affairs, and is beginning to direct her energies again towards opening outlets to market for her large surplus productions. Sectional divisions are shaping their efforts for this end in the direction which, from geographical position or other causes, offers the fairest prospect for its speedy accomplishment; and the value of the traffic already conducting on several of these incomplete works has centered capital and enterprise to them from abroad,

that have created new and important business relations. New York capital is largely employed in the business of the Wabash and Erie Canal, by which an extended belt of rich country is becoming habituated to look to that city for a market and for its foreign supplies; and the extension of that work to Evansville, provided for in the law adjusting the State debt, must greatly augment this, after making due allowance for that portion of it which will seek the southern terminus of the canal.

Again the Madison and Indianapolis railroad is creeping into the heart of the State, and while it is drawing to itself all the trade west of its extension north, that does not flow into the Wabash river or the Wabash and Erie Canal, its attractive influence is felt as far east as Rush county, from which and Hancock county, branch railroads are projected to connect with the one at present constructing from Shelbyville, in Shelby county, to form a junction with the Madison and Indianapolis railroad at Columbus. This latter road will be completed to Indianapolis the ensuing summer, when the company design to lay another track without delay, a single one being wholly inadequate to the business which, if not diverted, must be thrown upon it. A portion of the business conducted over this road at present reaches or emanates from Cincinnati, but its rapidly augmenting traffic will shortly operate a change in the present manner of conducting it, and enforce upon Madison the impolicy of sharing with Cincinnati a business which she ought to appropriate exclusively to herself.

From Indianapolis north, the unfinished portion of the Central canal will soon be taken up and extended to its junction with the Wabash and Erie canal, as originally designed. This is practicable at a small expense, some of the most expensive parts of the work being already finished. A bill was pending in our Legislature last winter, that provided for giving the northern division of this canal to a company on terms similar to those upon which the State surrendered the White Water canal, and was lost from being made a rider to the Butler bill, from which it was dismounted at too late a period of the session to permit the necessary formalities to be gone through with to secure its passage on its own legs. Unless some other enterprise shall divert the attention of those moving in this matter, our next Legislature will incorporate the Central Canal company, when it is probable the owners of the Wabash and Erie canal, whose revenues would be augmented by this tributary branch, will supply any small deficiency of means necessary to its completion, beyond what will be furnished by the counties through which it will pass.

Through the facilities which will be afforded by these three important works, the Wabash and Erie Canal, the Madison and Indianapolis Railroad, and the Northern Division of the Central Canal when in operation, the trade of a large portion of Indiana, that would under a different state of circum-

stances reach that city, must be diverted from Cincinnati, unless, by some countervailing policy, she can attract it thither. Suitable exertions made at once could probably effect this now, but if delay or indifference shall mark her course in reference to the only mode in which this is practicable, and a railroad fail to be commenced this summer to effect this object, the period is not remote when she will find, that no expenditure of capital or degree of exertion can fully retrieve the loss she must sustain, in having the trade of these large, productive, and growing regions of country directed to other points. We will lean upon the arm that will yield us the most support, and both interest and inclination at present, lead a majority of our citizens to desire to have it proffered from Cincinnati. The present posture of affairs demonstrates that her valuable trade is attracting attention abroad, and if it shall appear that she may pour her wealth into the lap of Cincinnati, upon condition her own resources create the facilities therefor, the broad and deep current that would otherwise set in that direction, will be dispersed into many streams, any one of which may equal that, to flow to that city. A tonnage estimated to be worth \$2,500,000 passed last year over the Wabash and Erie Canal from Lafayette to Toledo, no part of which probably paid her tribute, in any way; and that of the Madison and Indianapolis Railroad much short of what it might be made to do, and that to flow through the northern extension of the Wabash and Erie Canal, will pay still less.

The last six months has witnessed the transfer of a large portion of the stock of the Madison and Indianapolis Railroad to the hands of Eastern capitalists; and with the eagerness to command the stock of this road, will come the desire to share and control the business done on it. With a trade adequate to the capacity of a double track railway from Madison to the interior of the State, the capital and enterprise that will be attracted to that place will make it no contemptible rival of Cincinnati for the trade of Indiana; and to the commercial relations that will ramify thence, on a large portion of the State, may come to be added in time, a State pride that shall jointly raise us out of our present anomalous position of a state without a commercial metropolis.

The cities in the United States that have become preeminent from their wealth and prosperity, are so in the proportion in which, they have been distinguished for their public enterprise, in making themselves the focus, from which have radiated numerous artificial channels of commerce, which have placed them in connection with remote districts of country with which they have no natural associations. Remark the policy that has been pursued by the city of Boston. Instead of waiting until the urgent wants of her neighbors should compel them to create some facility of reaching a market, and of relying upon some natural advantages to co-operate with their necessities in dictating its direction, she has anticipated their tardy movements, and re-

garded neither mountain barrier, intercepting watercourse, nor remoteness of position, when the end to be achieved, was the commerce of a State. It is to be seen whether Cincinnati will profit by the lessons of thrift, taught by such enterprising cities, to the extent which her present advantages will admit. She has the power, and should have the sagacity, to turn much of the internal commerce of Indiana from the channels to which it is at present tending, in a direction to subserve her exclusive interests and on terms that would not be disregarded by any other city in the Union if made as practicable of acceptance.

Let the business men of that city give a glance to the map of Indiana, and remark the region of country along the route of the Saint Louis and Cincinnati Railroad—observe its rectangular connection with all the important inland communications through the State, at points remote from their outlets, and they cannot fail to see that these may all be made tributary to that main channel, instead of becoming its competitors. The immense amount of agricultural products that accumulate along the Wabash River, and the Wabash and Erie Canal, during periods of interrupted navigation, would seek a market over this road; and a judicious encouragement of this trade, at such times, would secure a large portion of it at others, when no obstruction to their navigation existed. The same remark will apply to the business of the Madison and Indianapolis Railroad, for the inducements presented by a more enlarged market, would attract the business of this road to Cincinnati in preference to Madison; especially if the additional encouragement were given to this trade, of low charges for transportation over the Saint Louis and Cincinnati Railway. The trade to be done on the Central Canal, running north from Indianapolis, in the absence of a direct and cheap mode of access to Cincinnati, will be divided between the Wabash and Erie Canal, and the Madison and Indianapolis Railroad.

If the trade which might be invited from all these sources, does not seem to be worth the effort, necessary on the part of Cincinnati to secure it, she must estimate it below its actual value or esteem herself incompetent to the undertaking. But the character of her citizens precludes the first inference; and a doubt of her ability to accomplish it, can only result from a failure to engage an interest, as general, in the undertaking, as the benefits waiting upon its accomplishment, must be diffused among all classes of her citizens.

All along the route of this contemplated railroad through Indiana, a determination has been evinced to carry it forward; but the impetus to this feeling was given by the preliminary movements had at either terminus of the road, when the subject was first agitated. It was understood then, as it is now, by those living at intermediate points, that Cincinnati and St. Louis had the deepest interest in the achievement of this undertaking; and every thing indicated their readiness to make that interest, and their ability, the measure of their efforts for its accom-

plishment; and hence the simultaneous movements in so many quarters, to testify a willingness to co-operate with them, for this purpose. Those directly interested in this State, in the success of this measure, will be the last to abandon it, as they were the last to take hold of it; and if the city of Cincinnati shall come up to the work prepared to act in the way her interests demand, she will be met by a corresponding determination; and this noble enterprise, fraught with immense benefits, social, intellectual, and pecuniary, to millions of human beings, will have had its origin and completion, within the compass of a few months. That this may be the result, must be the ardent desire of every one concerned, that owns the impulse of an honest devotion to Western independence, and, after the welfare of our common country, holds the peculiar interests of the West nearest his heart.

## CENTRAL INDIANA.

Indianapolis, May 7, 1847.

## ENGLISH AND IRISH RAILWAYS COMPARED.

The following comparison of cost and passengers is taken from Herapath.

The lines already completed in Ireland are the Ulster, Dublin, and Drogheda and Kingstown, and, in part, the Great Southern and Western and Midland Great Western; the following table shows the cost per mile of these, and also of a similar number in England of a corresponding character:

ENGLISH.		Cost per mile.
London and Croydon,	10	£80,400
Eastern Counties,	56	46,365
London and Brighton,	56	56,941
York and North Midland,	220	25,924
Norfolk,	220	13,150
IRISH.		
Dublin and Kingstown,	6	59,192
Dublin and Drogheda,	25	15,653
Ulster,	25	14,334
Great Southern and Western,	35	13,000
Midland Great Western,	35	10,000

Thus, then, it appears, the cost of construction in Ireland is invariably far less than in England; the average cost, in fact, of the lines now being made will be about £14,000 per mile; whereas, in England, it is about £25,000; the difference arising principally in the enormous sums here paid as compensation to landowners, and the much higher price of labor.

The next point for consideration is traffic. Now, it is well known that the revenue of a railway is derived principally from four sources, viz: the carriage of passengers, minerals, agricultural produce, and manufactured goods. The question then arises, in what degree does Ireland possess these?

*Passengers.*—The accompanying table shows the number of passengers per mile per annum on the lines already opened as compared with some of those in England:

	Number of Miles.	Number of Passengers per annum.	Number of Passengers per mile.
ENGLISH.			
London and Croydon,	10	768,021	76,803
London and Brighton,	56	788,366	14,078
Great Western,	220	1,993,068	9,014
IRISH.			
Dublin and Kingstown,	6	1,284,780	380,766
Ulster,	25	244,950	21,798
Dublin and Drogheda,	35	566,492	16,185



The above figures are taken from the official documents of 1845. In 1846, the number of passengers on the London and North Western was 1,008,000, and on the Drogheda and Ulster lines together, 1,111,422; the mileage of the former being more than double that of the two latter! Thus then, so far from there being as many have supposed, a lack of passengers, it appears that the number who at present use the rail in Ireland, is actually greater in proportion than that in England, where, from the extension of the system, it has become almost the sole medium of transport.

#### Bridges for Railroads--Whipple's Treatise.

We lately published a communication, from the pen of an able engineer, in relation to a pamphlet of 46 pages, by Mr. S. Whipple, of Utica, N. York. We then intimated that we should again refer to the subject. Having given it a hasty perusal, we find it well worthy of the commendations of our correspondent, "E. F. J."—and, by way of illustration, we give a few pages of the work, referring more particularly to *Iron Bridges*.

The first part of the work is descriptive of different spans and plans of construction, illustrated by diagrams, showing the effect of different plans of bracing—which makes the work practically useful to every man who has any interest in the construction, use, or durability of bridges; we therefore, with great pleasure, recommend the work, and its promised sequel, to the attention of engineers, bridge-builders and railroad companies. Without knowing positively, we presume it may be had of the author, S. WHIPPLE, C. E., and *Mathematical Instrument Maker*, Utica, N. Y.

The Title-page of the work is as follows, viz:—  
*An Essay on Bridge Building: containing Analyses and Comparisons of the Principal plans in Use, with Investigations as to the Best Plans and Proportions, and the Relative Merits of Wood and Iron, for Bridges. By S. Whipple, C. E., Mathematical and Philosophical Instrument Maker, Utica, N. Y., 1847.*

On page 38 and section 33d, he says:—

"Having decided upon the most suitable forms and proportions for bridge trusses, I will say a few words in regard to the material best adapted to the purposes of bridge building. We have seen that the materials in a bridge truss, are principally subjected to two kinds of action, that of tension and of thrust. The lateral action should always be avoided in the main parts of the truss. It is obvious then, that those materials best calculated to resist these kinds of force respectively, should, when practicable, without the sacrifice of economy, be employed in the situations where those forces are respectively exerted.

For instance, when the diagonals act by tension, the top rib, (or the arch, in case of the arched truss,) and the verticals, should be composed of the material best adapted to sustain a crushing force, while the lower rib or stringer, and the diagonals, should be of the best material for supporting tension.

Wood and iron, as before remarked, are the only materials that have been employed in bridge building, (I refer only to the superstructures,) to an extent worthy of notice, and

it seems reasonable to conclude, that on these we must place our dependence.

Cast iron will resist a greater crushing force than any other substance, whose cost will admit of its being used as a building material. Steel has a greater power of resistance, but its cost precludes its use as a material for building. Wrought iron resists nearly equally with cast iron, but its cost is twice as great, which gives the cast iron entirely the advantage. On the other hand, wrought iron resists a tensile force nearly 4 times as well as cast iron, and 12 or 15 times as well as wood, bulk for bulk.

Not only are these the strongest materials, but they are also the most durable. In fact, with proper precautions, they may be regarded as imperishable.

It would seem, then, that wrought iron for tension, and cast iron for thrust, were the best materials that could be employed for building bridges. But wood, though greatly inferior in strength and durability, is much cheaper and lighter, so that making up with quantity for its want of strength, and by frequent renewals for its want of durability, it has hitherto been almost universally used in this country for bridge building, and in the scarcity of means, and the unsettled state of things in a new country, where improvements are necessarily, to a great extent, of a temporary character, this is undoubtedly the most economical material for the purpose.

But it is believed that the state of things has now assumed that degree of settled permanency in many parts of this country, and available means have accumulated to that extent which renders it consistent with true economy to give a character of greater permanence to our improvements, and in the erection of important works, to have more reference to durability, even at the cost of a greater present outlay; and in view of the subject it seems highly probable that one of the channels in which this tendency of things will develop itself, will be in the extensive employment of iron in the construction of important bridges. With this impression, I proceed to some general comparisons as to the relative cost and economy of wood and iron as materials for bridges;

XXXIV. Cast iron resists a crushing force some 20 times as much as wood, consequently it will only require one-twentieth as much of the former to resist a given force, provided it can be put into a form in which its liability to flexure and yielding laterally, is not greater than that of wood. This can be accomplished, in part, by giving the iron a hollow form, so as to make the diameter of the pieces approximate to an equality with 20 times the same amount of wood, which must generally be used in a simple rectangular or cylindrical form.

Assuming, then, that a cubic foot of cast iron, will do the same work as 15 cubic feet of wood, (after making allowance for the necessary smaller diameter of the iron) we can institute a comparison which would seem, upon the surface, to show the relative economy of the two materials.

A cubic foot of cast iron, manufactured

for the work, will cost about \$13. 15 cubic feet of wood in a bridge will cost, say \$6.—Whence it appears that the cast iron is more than twice as expensive, in the first outlay, for sustaining a crushing force, as wood.

Again, a cubic foot of wrought iron in the work, say 450 lbs., at 7½ cts.—\$34.

Wood is about one-fifteenth as strong as iron. But about one-half of its fibres must be separated, in order that the other half may be so connected in the construction as to be available to their full strength by tension.—Hence it will take some 30 feet to equal one of iron; for which, say it will cost \$12;—showing a difference of a little less than three to one; the average for both kinds of iron, reckoning equal quantities of each, being about 26 to 1.

To offset against this, we have the superior durability of the iron, which, as before observed, may be regarded as per-durable, whereas wood requires frequent renewals, at a cost each time equal to the first outlay. Now the first cost of iron is sufficient to provide for the first cost of the wood, and nearly two renewals. Besides this, money, though an inanimate substance, is nevertheless, in these usurious times, made to be exceedingly prolific; inasmuch, that with good husbandry, it is found to double itself once in 10 or 12 years, according to the hard face of the lender, and the hard fortune of the borrower.

Assuming 5 per cent. per annum as the net income of money invested, the term of time in which the 100 dollars saved in the wooden structure, will require to produce one dollar for renewal, will show the time that wood ought to last, to be equal to iron in economy. 100 dollars at compound interest, will yield at 5 per cent. one dollar in less than ten years.

Therefore, if an imperishable iron structure cost 26 times as much as one of wood, and the latter last but ten years, and money will net 5 per cent. compound interest, the two materials are nearly on a par as to economy.

Now experience has shown that wooden bridges, unprotected by roofing and siding, seldom last with safety, over eight years, or thereabouts; and the more there be expended to increase the durability, the less surplus capital will be left towards renewals. Hence the iron would seem to have the advantage.

XXXV. But the above comparison is too superficial and general to be entitled to a great deal of confidence, except, perhaps, as regards the sustaining of a given weight by a simple post, or suspending it by a bar or rod of iron or wood. In the complicated assemblage of pieces, forming the superstructure of a bridge, there are numerous other facts and considerations which materially vary the results. 1st, there is a difficulty in connecting pieces of timber in such a manner that every part may be proportioned to the strength required of it to the same extent as can be done with iron. 2d, it is frequently necessary to use considerable quantities of iron in bolts and fastenings, for putting together a structure of wood requiring great stability. 3d, wood soon loses a portion of its strength by partial decay, and

consequently requires additional strength in the beginning, that it may be safe for a time after decay has commenced.

Hence, but little can be predicted upon the simple general comparisons of wood and iron as to strength and cost, relative to the comparative economy of the two materials for bridge building.

It is only by comparing the results of actual experience, or, where this has not been had, by comparing the results of detailed estimates, upon well matured plans, founded on well established principles, that a satisfactory conclusion can be arrived at.

With regard to wooden bridges, much experience has been had, and the reasonable presumption is, that a good degree of economy has been attained in their construction. But the idea of building iron bridges in this country is of recent date, and but little has been experimentally proved in relation to their cost and qualities.

XXXVI. This much, however, my own experience has demonstrated. Having received Letters Patent for an "Iron Trussed Bridge" upon the general plan of the arched truss shown in fig. 8, and constructed two bridges thereon, over the enlarged Erie canal, (72 and 80 feet span) one of which has been in use six years, it may be regarded as a demonstrated fact, that bridges may be sustained by iron trusses. Also, that the cost, for the above class of bridges, is only about 25 per cent. more than the same class of bridges of wood, as heretofore built, under the most favorable circumstances, on the Erie canal. That the iron portion, constituting some  $\frac{1}{3}$  of the whole as regards expense, in the iron bridge, gives fair promise of enduring for ages, while the wooden structure can only be relied on to last 8 or 10 years.

Upon these facts experimentally established I found the following comparison:

A common road bridge of 72 feet span (the usual length of the enlarged Erie canal) will cost, with iron trusses,  
7000 lbs. of cast iron, 3 cts., . . . \$210  
6000 wrought do., manufactured for the work, at 7 cts., . . . 420  
Timber, labor and painting, . . . 230  
Superintendence and profit, . . . 80

Whole first cost, . . . 940  
\$175 will renew the perishable part once in 9 years, to produce which, at 5 per cent., will require a capital of . . . 320

Total for a perpetual maintenance, . . 1260  
With wooden trusses fastened with iron, timber, labor, paint and profit, . . . 550  
2000 lbs. of iron fastenings, . . . 150

Whole first cost, . . . 700  
(Some have cost \$1000 or \$1200, and taken 3 to 4000 lbs. of iron.)  
To renew \$550 worth of perishable material, once in 9 years, at 5 per cent., compound interest, will require, . . 1000

Total for perpetual maintenance, . . \$1700  
Showing a clear ultimate saving of \$440, in favor of the iron structure.

The reason of the apparent difference between this result and that arrived at (Art. 34) from the general comparison of the cost, etc., of wood and iron is, that the bridges here referred to, have been constructed with a very large amount of iron fastenings, and with large quantities of casing and painting for protection and appearance. Were the comparison confined strictly to the expense of timber work in the sustaining parts of the trusses, the result would be found not to differ so essentially from that of the general comparison.

The above estimate of \$700 for the first cost of a 72 feet wooden bridge, though considerably below the average cost of canal bridges of that description, is nevertheless believed to be greatly above the minimum for which bridges may be built, dispensing with parts which are not essential to strength. It is probable that bridges may be built for \$500, as about the minimum, of equal strength and convenience, and nearly the same durability as those hitherto built upon the Erie canal enlargement, at a cost of 800 to 1000 dollars. Upon this supposition, which may be regarded as an extreme case in favor of wood, the comparison will stand thus:

First cost of wooden structure, . . . \$500  
Capital invested at 5 per ct. to produce \$500 once in 9 years for renewal, . . 909

Total for perpetual maintenance, . . 1409  
The same for iron structure as above, 1260

Balance in favor of the iron bridge, . . 149

Finally, since theoretical calculation and general comparison show a *probable* advantage, for a long term of time and experience, as far as it has gone, shows a *decided* advantage in favor of iron, it would seem very unwise to discard the latter, without at least a fair trial of its merits. If in the first essays at iron bridge building, the iron bridge had competed so successfully with wooden bridges, improved by the experience of ages, may not the most satisfactory results be anticipated from an equal degree of experience in the construction and use of iron bridges?

XXXVII. Presuming the affirmative to be the only rational answer to the above question, I have arranged the details of plans for carrying into practice the preceding principles and suggestions in the construction of railroad bridges of iron.

I have also made careful detailed estimates of the expense of bridges of different dimensions and in different circumstances, some of the more general results of which I will here state.

In proportioning the parts of a railroad bridge, I have assumed that it may be exposed to a load of 2000 lbs. per foot run, for the whole or any part of its length, in addition to its own weight, and in case of tension, have allowed one square inch cross section of wrought iron for every 10,000 lbs. of the maximum strain produced upon every part by such weights, acting by dead pressure. In case of thrust, or crushing force, I have allowed one square inch cross section of cast

iron for every 12,000 lbs., acting on pieces, (mostly in the form of hollow cylinders,) of a length equal to 18 diameters, and a greater amount of material, where the ratio of the length to the diameter is greater; always having regard to practicability, as well as theoretical proportions, in adjusting the dimensions of the parts.

My estimates made upon these bases have fully satisfied me, that a bridge of 100 feet span, with the track sustained upon the top, will cost about \$2000; or \$20 per foot, assuming the present prices of iron (1846) in ordinary circumstances. If the track pass near the bottom of the trusses, the expense will be increased two or three dollars per foot.

For a span of 140 feet, by a liberal detailed estimate, I make, in round numbers, a cost of \$4000. For 70 feet, I make by actual estimate, and liberal allowances for contingencies, a cost of 900 to 1000 dollars, according to circumstances.

Thus it will be seen, that actual estimate makes the cost of a single stretch of any length, very nearly as the square of the length—as should be expected from the nature of the case.

Hence, knowing the cost of a span of any given length, we readily deduce that of a span of any other length, in similar circumstance, with reliable certainty.

These estimates of cost provide for superstructures entirely of iron, except the string timbers to support the iron rail. By the substitution of wooden cross bearers, a considerable saving may sometimes be effected, without incurring serious inconveniences.

But though my investigations have forced upon me the conviction, that in general, where strong and durable bridges are required, iron should be preferred in their construction, still there is a multitude of cases where wooden structures should be preferred, especially in sections of country comparatively new, where timber is plenty and capital scarce; and where improvements must necessarily be of a more temporary character. With this view of the subject, I have given much attention to the details of wooden bridges, and with a good deal of investigation and experiment, have arranged plans which are confidently believed to possess important advantages over the plans generally in use.

I may therefore be excused the expression of a belief, that I might be able to render valuable services to those interested in the construction of important bridges, generally, and with this conviction I make the proffer of my services, wherever they may be desired, for the purpose of furnishing plans, superintending the construction of bridges, either of wood or iron, and in consultation generally in matters pertaining to this, as well as other subjects in Mechanics and Civil Engineering.

I would add that I design shortly to publish, as a sequel to what precedes, should circumstances seem to warrant it, a set of working plans for bridges of different lengths and descriptions, both of wood and iron, with details, specifications, and general remarks.

S. WHIPPLE.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, June 5, 1847.

#### Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

#### Spanish Railroads.

It is remarkable that there is not in the world, such a thing as a railroad in any country where the Spanish language is spoken, with the exception of those in Cuba, which mainly owe their existence to American enterprise.

#### Stonington Railroad.

The Directors of the Stonington Railroad Company are about to make application to the City Council of Providence, for permission to bring their road into the city and to establish their depot in the Cove, so as to connect with the Boston and Worcester roads, and form an unbroken railroad communication from Boston to Stonington.

#### Telegraph Lines in the United States.

The Magnetic Telegraph Lines established in the United States, worked on Morse's plan, comprise an aggregate distance of 1575 miles. The lines under contract and in course of construction, comprise 4974 miles—making an aggregate of complete and unfinished lines of 6549 miles. By the first of January next all these lines will be in active operation.

#### Toledo.

Toledo is going ahead rapidly, and bids fair to become one of the most important ports on the Lake. Last year she sent forward 160,000 barrels of flour, and 800,000 bushels of wheat. Her enterprising citizens are making preparations for a still larger business this year. A great number of buildings are now in course of erection, and her shipping is increasing daily.

#### The New Steamer "Bay State."

An exchange paper noticing this beautiful boat, which has lately been put upon the Stonington route, says that "in her speed she has disappointed her most sanguine friends, having exceeded their expectations altogether. The Oregon admits, for the first time, that she has found a match. The boats left New York at 5 P. M., and continued together until opposite Saybrook light, when the Bay State passed her, continuing about twice her length ahead till the boats entered Fisher's Island sound, where their course changes. The Bay State was built rather for a substantial than a fast boat. Hence her speed is a matter of agreeable surprise. The Oregon did not make her passage by about 30 minutes as quick as on a former occasion, before her

immense iron braces were added to her, to strengthen her, and when she had no freight. At this time she had a large freight list.

#### New Jersey, Hudson, and Delaware Road.

The capital stock of this company, as we learn, from the Newark Advertiser, has been duly subscribed, and it is now prepared to organize under favorable auspices. A respectable association of gentlemen, comprising citizens of Sussex and Essex counties, with capitalists from New York, have subscribed for the stock, and the charter is now in hands which afford a guarantee that its liberal provisions will be employed in advancing the interests and welfare of the districts of New Jersey on the Delaware river, by judicious appropriation of capital. Pennsylvania, especially the part bordering on and in the vicinity of the Delaware, with her great mineral and agricultural resources, is deeply interested in the construction of a railroad avenue to the great commercial emporium, and New York by increasing her supplies of fuel and bread-stuffs from the country will greatly promote her own growth and the wealth of her citizens, and at the same time add to her commerce. Indeed, we can see no good reason why a railroad from the Hudson to the Delaware will not be a main link in a Westward communication extending through Pennsylvania to the great West.

#### A Curious Safety Lock.

We seldom meet with a more novel and quaint invention than that of a new bank and safe lock invented by Mr. J. Y. Savage, of New York. The lock itself is very simple, having a stout bolt attached to the inside of the door, and which is projected forward by a spring whenever the door is closed, and without the least possible communication with anything outside, no aperture nor even an indication of the situation of the lock. But a simple clock movement is attached to the door inside, and so arranged as to be adjusted to let off a spring at any required hour and minute, on the principle of the common alarm clock; and this spring, when thus liberated, withdraws the bolt inside. But neither the burglar nor the lawful proprietor can possibly obtain access to the interior till the faithful sentinel inside gives the word.

#### The Northern Railroad.

We learn from the Boston Courier, that the second annual meeting of this Company was held on Wednesday at Concord, N. H. There was a large attendance of stockholders. Charles Theodore Russell, of Boston, a director, made the report. The report states that the road is prosperous, and that the eight assessments which have been made have promptly been paid. The two freshets which occurred in February and April delayed the running of the cars in one instance four, and in the other seven days. The cost of repairs was only about \$2500. The road was in an unfinished state. After it is completed and settled down very little damage need be apprehended from freshets. Eighteen miles of the road have been opened, and in four months, from September to May, the receipts were \$13,792.97, and the expenses of running \$7,685.85. There have been some extra outlays: in ordinary circumstances, the profits would have been equal to 7 per cent. on a cost of \$20,000 a mile on that portion of the road.

The remaining portion of the road from Franklin to the River, is in rapid progress and it will be opened to Elston's, in Andover, in July next; to Grafton in August, and to Canaan in October; and the whole to and across the Connecticut River as

early as November next. At this time it is expected that the Vermont Central Railroad will be ready for use from the termination of the Northern road to Northfield, a distance of about fifty miles.

The land damages have been nearly all settled. Eight assessments have been laid, which, as already stated, have all been paid. The capital paid in and interest received amount to \$1,310,463.74, and the expenditures have been \$1,237,745.33, including a dividend of interest to stockholders on their assessments.

After the report had been accepted, a committee was appointed to collect votes for directors for the ensuing year, and the old board, consisting of George W. Nesmith, Charles Theodore Russell, Nathan Carruth, Timothy Kenrick, Francis N. Fisk, Solomon Wildes, and Barnabas B. David, were almost unanimously re-elected. The meeting then dissolved.

#### Lake Harbor Improvement Convention.

A convention of Delegates, we learn, from the Lake region, the valley of the Mississippi, and New York, will assemble at Chicago on the 5th day of July next, to adopt measures to secure the improvement of the harbors of Lake Erie, Lake Huron, and Lake Michigan. The object of the Convention is of the first importance, not only to those who reside in the vicinity of the proposed improvements, but to the citizens of New York, Boston, and all the commercial cities of the Northern seaboard. We notice that St. Louis, Cincinnati, Pittsburgh, and other principal towns, are appointing large delegations to this Convention. Buffalo chose her delegates some time ago, placing Hon. Millard Fillmore at their head. We trust that our own citizens will not be unmindful of the importance of the occasion, and the manifest propriety of being well represented thereat. It is confidently expected, by the bye, that the Hon. Daniel Webster will be present at the Convention, and lend to its proceedings the weight of his presence and influence.

#### Sparks from Locomotives.

Mr. S. T. Townsend of Albany, says the Baltimore Sun, has recently invented a new method for disposing of the sparks and smoke from Locomotive Engines, which seems likely to throw all others completely in the shade. The inconvenience arising from the sparks has been one of the most unpleasant features in railroad travel, and to get rid of them completely will be one of the greatest advances towards the perfection of that mode of conveyance. The following is a description of Mr. Townsend's apparatus: A bell muzzle pipe projects horizontally forward of the regular smoke pipe of the engine, and which after its junction with the smoke pipe, extends rear-wards. This front pipe is for the admission of cold air; and the steam from the engine is conducted separate from the smoke, nearly to the junction of the vertical with the horizontal pipes; and then coming in contact with the cold air, it becomes partially condensed, and in its progress to the rear, it keeps the inside of the pipes so moist as to quench all the sparks before they reach the end of the series. The several horizontal pipes are connected to each other by sections of elastic pipes, consisting of India-rubber cloth, peculiarly prepared to withstand the heat, and supported in its position by a helical coil of wire, terminating at each end in a metallic hoop, which is so constructed as to be instantly adjusted and fastened to either end of either of the metallic pipes. The several pipes on any number of cars, are thus connected, or occasionally detached without any trou-

ble or exertion on the part of the brakeman. Each joint or section is furnished with a small water pipe, which passes down the side of the car, for the escape of the water produced by the condensation of steam. Nearly over the safety valve, is a valve opening upward for the immediate escape of the steam when blown off from the boiler. It is proposed to elevate occasionally the rear end of the series of horizontal pipes, thus throwing the smoke upwards.

#### Railways--Waking Up.

The efforts making to complete, at an early day, a Railway from Niagara River to Detroit, through Canada, begin to excite some attention in Western New York and in New England. A recent convention on the subject has been held in Chautauque County, says the Sandusky Clarion, at which resolutions were unanimously passed, declaring:—

That it is the interest of the people on the southern shore of Lake Erie, to have a continuous Railway connection extending to the Mississippi Valley.

That New York and New England ought not to permit the granaries of the West to be sealed five months in the year, but should aid in opening such communications to the West and South as will secure their trade to the enterprise of the East and North.

That to prevent the trade of the Lakes from being diverted to the Railway through Canada, or to southern channels of commerce, a Railway along the southern shore of Lake Erie to its head, and from thence south west, should be constructed. The first great link to this improvement is a Railway from Buffalo to Erie.

The convention pledge their energies to these improvements, and send a committee to present their views to the New York Legislature now in session, and to ask for a charter to connect Buffalo with Erie, similar to the charter of Pennsylvania from the State line.

#### Railroads at the East.

The Skowhegan Clarion of last week states that a committee of its citizens are engaged in exploring a route for a railroad from that place to Augusta, by way of West Waterville, and it is expected that an Engineer will be on the ground about the 30th inst., for the purpose of examining the route.

A meeting for the organization of the Newburyport and Georgetown (Mass.) Company was held in Georgetown, on the 1st inst. A strong feeling was manifested in favor of commencing operations forthwith, and the directors were authorized to make an assessment for the purpose of securing the land and locating the road without delay, if in their opinion it should be desirable, when the subscriptions shall amount to \$75,000.

A large and spirited meeting of the stockholders of the Fitchburg and Worcester Railroad was held at Leominster on the 14th instant, and the Directors were instructed by a unanimous vote, to proceed forthwith to the location and construction of the road. It will run from Fitchburg through Leominster and Sterling villages, and connect with the Worcester and Nashua road in Sterling two miles south of the village. Its whole length will be twelve miles.

We notice that in the Maine Legislature, last week, Mr. Foster of Pembroke offered an order for the appointment of a joint select committee to inquire into the feasibility of a Railroad from Portland through Bangor, Calais and St. Stephens, to the city of St. John, or to some point on the St. John river, with power to collect statistics relative thereto, and

to invite the co-operation of citizens of the Provinces.

The Bath Tribune of Monday contains a notice calling a meeting at Lisbon, on the first day of June, at 9 o'clock, A. M., of all persons interested in having a railroad from Bath to Lewiston Falls, and still further into the interior, if thought advisable, to take such incipient measures as may be thought expedient to carry their wishes into effect. The Tribune says "a more important movement, as far as regards Bath and the places on the route, has never been made."

Our friends "down East" are evidently determined not to be outdone by competitors, in the number of their railroads, at any rate, and we are assured that the citizens in that region are in earnest in these enterprises. Happy are we to note it.

#### Railroad Intelligence.

The Commission appointed by the Legislature of New Jersey for the purpose of receiving subscriptions to the capital stock of the Summerville and Easton Road, have made arrangements to have the route immediately surveyed and the road located, and have employed engineers for that purpose. The merits of this road are equal, if not superior, to any road now made or contemplated, leading to this city. The road passes through the most thriving and rich parts of New Jersey, and terminates at the borough of Easton, one of the most growing and enterprising towns in Pennsylvania.

We learn that, at a meeting of the Board of Directors of the Baltimore and Ohio Railroad Co. the President was authorized to engage in a final conference with the authorities of the city of Wheeling, and to enter upon an examination of the late law of the Virginia Legislature, granting the right of way through that State, in order to ascertain the practicability of obtaining such present or prospective modifications of the law as would warrant the company in commencing the immediate extension of the road.

The Railroad from Detroit to Kalamazoo is now in successful operation, having improved since it came into the hands of Bostonians.—Workmen are now engaged in grading west of Kalamazoo, and the expectation is to complete the road to Lake Michigan by another year.—The point of termination at the Lake is not definitely settled. It will be either at New Buffalo or St. Joseph. It now takes about 32 hours to go from Detroit to Chicago by this route. The distance is 270 miles, viz: from Detroit to Kalamazoo, by railroad, 146; from Kalamazoo to St. Joseph, by stage, 55; and from St. Joseph to Chicago, by steamboat, 69.

The whole distance from Rochester to Niagara Falls is 81 miles, 26 miles of which road is built and in operation, and only a line of 55 miles remains unfinished, and about one half the stock for that portion of the road has been taken, say \$400,000. When the Rochester and Niagara Falls road and the Great Western (Canada) road are finished, it will complete a chain of railroad from Boston to a point in Canada, opposite Detroit, Michigan, and when the Hudson and Harlem road is finished to Albany, it will make a line from New York city to the same point, via Niagara Falls, and through Upper Canada.

The Northern (N. H.) road is to be completed to North Andover, a further distance of 15 miles by July next—making 33 miles from Concord. In the course of the year it is expected it will be complete to the Connecticut river, and on the other side of the river the Central Railroad in Vermont will be finished to Montpelier.—The receipts on the eighteen

miles already open, have exceeded \$8000 in the last 9 months, equal to 8½ per cent. per annum, after deducting expenses.

The work on the "Great Western" (Canada) road which was commenced, and suspended in consequence of the agitation of the Oregon question, is now resumed, and it is believed by persons familiar with the subject, that the amount subscribed, \$6,000,000, and partly paid in, will far exceed the amount required to finish the work. The Niagara Bridge has been chartered, and the stock to the amount of \$200,000 has been taken, which is supposed to be sufficient to complete the work.

After a long delay, which has borne hard on the patience of those immediately interested, a forward movement has been made upon the Concord and Portsmouth road, the ground has been broken, and the road may be now said to be in progress of construction.

The work upon the Rutland (Vt.) Road is going on at four points this side of Mount Holly, and the Mount Holly sections are to be commenced immediately. The sections in Brandon are progressing, and the remainder of the line will be immediately put under contract.

Within the last twelve months the people of the city of New York have subscribed about \$7,000,000 to railroad stocks. Boston about \$2,000,000; Pittsburgh about \$500,000, and Philadelphia about \$3,000,000.

The Kennebec Journal expresses a strong conviction that a railroad will be made on the Androscoggin, from Bath to Livermore or Canton,—perhaps further up.

It is now proposed to extend the Fitchburg road into Boston as soon as a convenient site may be secured and depot buildings erected.

The Harlem road has been extended and put in operation to the line of Putnam County.

#### Magnetic Telegraph Mail.

A highly important arrangement has lately been made with the Southern line of Telegraph. The Postmaster at New Orleans has announced that he will, hereafter, under instructions from the Postmaster General, make up daily a separate bag for the East, in which will be placed all communications intended to be sent to their respective destinations by Magnetic Telegraph from Fredericksburg, Va. The letters so despatched must be addressed to the operator of the Telegraph at Fredericksburg, and the postage and Telegraphic charges are to be paid in advance, at New Orleans.

The aggregate postage and Telegraphic charge for the transmission of ten words from New Orleans to Fredericksburg by mail, and thence to Baltimore by Telegraph, is 70 cents; for the same number of words to Philadelphia 85 cents; to New York \$1 10; to Boston \$1 60. For twenty words the charge will be:—to Baltimore \$1 25; Philadelphia \$1 60; New York \$2 10; Boston \$2 90. For fifty words:—to Baltimore \$2 90; Philadelphia \$3 85; New York \$5 10; Boston \$6 80. For one hundred words:—to Baltimore \$5 65; Philadelphia \$7 60; New York \$10 10; Boston \$13 30. For all words over one hundred the ratio of charge will be the same as below that number.

A number is paid for the same as a word. No charge is made for the address, signature, or date, nor for transcribing or delivering the despatch at the place of destination.

Parties wishing to keep their communications secret from the operators can do so by adopting any cypher they may agree upon with their correspondents.



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

## Return of the Taunton Branch Railroad Co., under the Act of April 16, 1846.

Capital stock.....	\$250,000
Increase of capital since last report.....	Nothing.
Capital paid in, per last report.....	250,000
Capital paid in since last report.....	Nothing.
Total amount of capital stock paid in.....	250,000
Funded debt, per last report.....	Nothing.
Funded debt paid since last report.....	"
Funded debt, increase of, since last report.....	"
Total present amount of funded debt.....	"
Floating debt, per last report.....	"
Floating debt paid since last report.....	"
Floating debt, increase of since last report.....	"
Total present amount of floating debt.....	"
Total present amount of funded and floating debt..	"
Average rate of interest per annum on do.....	"

## COST OF ROAD AND EQUIPMENT.

For graduation and masonry, per last report.....	87,859 80
For graduation and masonry, paid during the year, Nothing.	
Total amount expended for graduation and masonry.....	\$87,859 80
For bridges, per last report.....	Nothing.
For bridges, paid during the past year.....	"
Total amount expended for bridges.....	
For superstructure, including iron, per last report.....	86,744 11
For superstructure, including iron, paid during the past year.....	2,626 06
Total amount expended for superstructure, including iron.....	89,367 17
For stations, buildings and fixtures, as per last report.....	36,865 33
For stations, buildings and fixtures, paid during the past year.....	6,967 09
Total amount expended for stations, buildings and fixtures.....	43,832 42
For land, land-damages and fences, per last report.....	30,088 76
For land, land-damages and fences, paid during the past year.....	20 00
Total amount expended for land, land-damages and fences.....	30,108 76
For locomotives, per last report.....	
For locomotives, paid during the past year.....	
Total amount expended for locomotives.....	
For passenger and baggage cars, per last report.....	
For passenger and baggage cars, paid during the past year.....	28,245 91
Total amount expended for passenger and baggage cars.....	
For merchandise cars, per last report.....	
For merchandise cars, paid during the past year.....	628 18
Total amount expended for merchandise cars.....	28,874 09
For engineering and other expenses, per last report.....	13,406 20
For engineering and other expenses, paid during the past year.....	
Total amount expended for engineering and other expenses.....	13,406 20

Total cost of road and equipment..... 993,448 44  
 [Charged off for depreciation of road & equipment] 43,448 44

## CHARACTERISTICS OF ROAD.

Length of road.....	11 miles.
Length of single track.....	11 miles.
Length of double track.....	None.
Length of branches owned by the company, stating whether they have a single or double track.....	None.
Weight of rail per yard in main road.....	58 lbs.
Weight of rail per yard in branch roads.....	None.
Maximum grade, with its length in main road.....	29 feet in 3000
Maximum grade, with its length in branch roads.....	None.
Total rise and fall in main road.....	123 feet.
Total rise and fall in branch roads.....	None.
Shortest radius of curvature, with length of curve in main road.....	800 feet in 1000
Shortest radius of curvature, with length of curve in branch roads.....	None.
Total degrees of curvature in main road.....	70 deg.
Total degrees of curvature in branch roads.....	None.
Total length of straight line in main road.....	11 miles.
Total length of straight lines in branches.....	None.
Aggregate length of truss bridges.....	"
Whole length of road unfinished on both sides.....	"

## DOINGS DURING THE YEAR.

Miles run by passenger trains, [on the main road with company's engines, 90,548; on Boston and Providence road, with their engines, 30,048.....]	50,596
Miles run by freight trains, [on the main road with the company's engines, 6,886; on the Boston and Providence road, with their engines, 14,976.....]	21,862

Miles run by other trains.....	1,056
Total miles run.....	73,514
Number of passengers carried in the cars.....	117,945
Number of passengers carried one mile.....	1,290,951
Number of tons of merchandize carried in the cars.....	25,607 tons 205 lbs
Number of tons of merchandize carried one mile.....	281,678 tons 258 lbs
Number of passengers carried one mile, to and from other roads.....	767,159
Number of tons carried one mile, to and from other roads.....	281,201 tons 104 lbs
Average rate of speed adopted for passenger trains, including stops.....	31 minutes per mile.
Average rate of speed adopted for freight trains, including stops.....	3 " "
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile.....	723,030
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile.....	771,223

## EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron.....	\$6,440 25
For repairs of truss bridges.....	
For renewals of iron, including laying down.....	
For wages of switch-men, gate-keepers and flag-men.....	298 06
For removing ice and snow.....	36 75
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses.....	
Total for maintenance of way.....	6,775 06

## MOTIVE POWER.

For repairs of locomotives.....	1,325 33
For new locomotives to cover depreciation.....	861 48
For repairs of passenger cars.....	303 36
For new passenger cars to cover depreciation.....	
For repairs of merchandize cars.....	390 59
For new merchandize cars to cover depreciation.....	499 00
For repairs of gravel and other cars.....	
Total for maintenance of motive power.....	3,379 76

## MISCELLANEOUS.

For fuel and oil.....	4,880 92
For salaries, wages and incidental expenses, chargeable to passenger department.....	3,302 67
For salaries, wages and incidental expenses, chargeable to freight department.....	4,348 64
For gratuities and damages.....	95 08
For taxes and insurance.....	11 70
For ferries.....	
For repairs of station building, aqueducts, fixtures, furniture, [exclusive of amount charged to the construction thereof].....	80 63
For interest.....	
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, [New Bedford and Taunton, \$8,617 35; Boston and Providence, \$57,227 04.....]	65,844 39
For amount paid other companies as rent for use of their roads, specifying each company.....	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items.....	2,184 45

## INCOME DURING THE YEAR.

For Passengers:	
1. On the main road exclusively, including branch owned by company.....	1,269 56
2. To and from other roads, specifying what:	
[New Bedford and Taunton.....]	\$35,976 37
[Fall River.....]	12,815 93
[Boston and Providence.....]	31,964 46

For Freight:	
1. On main road and branches owned by company.....	23 31
2. To and from other connecting roads.....	38,916 76
U. S. mails, \$1,299 63. Interest, \$951 16. Sale of land, \$550.....	2,800 79
Total income.....	123,067 18
Net earnings after deducting expenses.....	32,163 99
[Amount charged off during the year, for depreciation of road and equipment.....]	10,941 33

## DIVIDENDS.

Surplus not divided.....	1,922 66
Surplus last year.....	25,654 52
Total surplus.....	27,577 18

ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:	
Road and bridges.....	
Buildings.....	
Engines and cars.....	

Thomas B. Wales, Samuel Frothingham, Samuel Quincy, John F. Loring and William Crocker—Directors.

**How to do it.**

In a late number of the Cincinnati Gazette we find the annexed editorial, in relation to the failure of those interested to obtain a sufficient amount of subscriptions, to begin the proposed Lexington and Covington railroad. The Gazette says:

"The Licking Valley Register of May 14, states that the subscription books for the stock of this important work were open in Covington on Monday, Tuesday and Wednesday of this week, when the enormous amount of 20 shares of stock were taken, and that by one individual. The Register says: 'We have not learned whether books were opened in either Cincinnati or Newport, and we suppose it is a matter of no consequence whether they were or not, for if the same apathy prevailed in those parts that did in Covington, no stock was taken.' We are not able to enlighten our neighbor as to either Newport or Cincinnati. But we may be permitted to say to him, that he exhibits in the course of the article from which we have cut the sentence here quoted, a spirit entirely too easily discouraged. 'Say no more,' he exclaims, about a railroad from Covington to Lexington, 'for a quarter of a century!' That is the very way to make sure of having nothing done 'for a quarter of a century.' But it is not the way in which we Cincinnatians got our railroad, and the canals and turnpikes that now daily bring to this city the large surplus products of some of the richest valleys in the world. When we made our first failures in these great enterprises, we kept on saying, and at length got to doing—and now look at the results! Had we acted in the spirit of our friend of the Register, and as he would lead his readers to act, we should have found Cincinnati at the end of a 'quarter of a century,' something as Covington now is. But we saw the potency of words as preparatory to deeds, and kept on talking for that 'quarter of a century,' and were then fully prepared to go to work—and our achievements, we may without boasting say, fully vindicate the wisdom of our course.

We hope our friends of Covington and Newport will make up their minds to profit by the example of Cincinnati in this particular, and "do likewise." Our very common school children inculcate better precepts than those of the Register; for we daily hear their free glad voices ringing out the burthen of one of their favorite songs, "Try, try again!" And these words we recommend to our too easily discouraged neighbors over the river. You tried a first time some years ago, you have now tried a second time, go to work at it once like men, and "try, try again!" The Mexicans were not driven from Buena Vista by one trial, nor by two, but by many trials by individual commanders, by companies, by detachments, by regiments, by the whole army—begun, continued and renewed, till the work was done. Let the Register, and the capitalists of Covington and Newport, and the farmers and graziers along the line of the proposed road, evince something like the spirit of old "Rough and Ready," and his brave indomitable troops, and difficulties will vanish from before them as the, at one time, terri-

ble array of Mexicans vanished from before the Americans at Buena Vista.

We confess, too, much regret at the present failure of our Kentucky neighbors, but we are not much disappointed. The charter of the railroad company was not published and generally understood. The fire was not "kept up along the whole line," as it ought to have been. There was hardly a sufficient consultation, ere the opening of the books, as to "times and seasons." And especially was there not enough of the right sort of work done before the arrival of the day on which the books were to be opened. People on all such occasions are much more backward in going to the books, than they are in putting down their names when the books are carried to them. Cincinnati learnt this a good many years ago; and it is the lesson which Covington and Newport ought to have learnt before the great effort was made. But we do not despair of their road if they do.—Such a channel of transportation is necessary from the rich heart of Kentucky to her northern border at the mouth of the Licking, and it will be constructed. We have no doubt of that. But we have just as little, that hard work alone can construct it. Another trial must be made, and our neighbors must make it, and they cannot be too soon maturing their plans."

There is much truth, and good sense, in these remarks of the Gazette; and they will apply to others—both companies and individuals—as well as the parties here referred to. "Try, try again," say we.

**Railway Buffers.****Vulcanized India-Rubber Springs.**

From the London Mining Journal of April 24.

At the meeting of the Society of Arts, on the 14th inst., a paper was read "On Fuller and De Bergue's Vulcanized India-rubber Springs for Buffers, etc." The application of caoutchouc, or India-rubber, to railway purposes, has of late years occupied more or less, the attention of scientific men. Possessing, as this material does in a very high degree, the properties of flexibility and elasticity united with great tenacity and power of resistance under heavy pressure, its adaptation to various important and valuable purposes in mechanics was too obvious to have escaped notice; yet its liability to become hard and rigid when exposed to severe cold, and on the other hand soft and clammy under the influence of heat, were serious drawbacks to its extensive application; and it was not until very recently that the method of preparing it, by a patented process termed "vulcanizing," has imparted a value and importance to this simple material which is likely to lead to its much more extensive adoption in this and other departments than has hitherto been known. The process referred to (and which is now pretty generally understood) consists principally in the admixture of sulphur and some other ingredients at a high temperature (see Hancock's patent, granted in November, 1843,) by which perfect elasticity is obtained, and non-liability to be affected by any heat or cold of climate. The present invention, for which a patent was granted in October, 1845, is for the application of

the material above described for the purpose of buffer and other springs of railway carriages, according to various modes therein specified, and of which we shall now proceed to furnish a description. Instead of the steel springs, as at present, the patentees use a succession of rings or discs of India-rubber of various diameters, from 4 in. to 6 in., according to the position and strength required, and from 1 in. to 2 in. in thickness. These are placed on the buffer-rod which passes through the centre, and are separated by thin iron plates; each plate is provided with a conical collar, which serves to keep the India-rubber firmly in its place, and at the same time admits of free expansion and contraction without coming into contact with the rod.

The advantages attending the use of this material over steel are numerous and striking. In the first place, their weight being scarcely a tenth part of that of steel, they may be placed in any part of the carriage, whilst the saving of weight in a long train (amounting to several tons) will to some extent economize the locomotive powers. Next we have their extreme simplicity, and the impossibility of their being damaged or broken, even in a collision. An opportunity occurred of proving this a few weeks ago, when an engine fitted with these buffers, run off the line near Hull, the iron-work being considerably damaged and broken, but the rings altogether unhurt. Another advantage in these springs is, the greater ease with which they are acted upon at first starting, being at the outset more flexible and yielding than steel; whilst the power accumulates so rapidly under pressure as to prevent the possibility of the buffer-head being brought to a dead hard stop, the benefit of which in concussions is sufficiently obvious. Another important and distinct advantage is the facility with which their power may be regulated. It will be evident, on inspecting one of the larger rings that its power of resistance will be in proportion, first, to its diameter, (or, more strictly speaking, to its superficial area,) and next to the proportion which such diameter or area bears to its thickness; thus, a ring of any given diameter or area 3 in. thick, would be much more easily acted on and reduced to half its bulk than one of 1½ in. thick. The convex form taken by the India-rubber being in the latter case much more sudden, and requiring the exertion of nearly double the power. From this it will be at once evident that, by employing a greater number of separating plates in any given distance, you have the power of regulating these springs to the greatest exactness. The patentees state that the price of these springs (including patent right) will not exceed that of steel, but will probably be something less. Several engines and tenders have been fitted with these buffers at Wilson's Foundry, Leeds, and are now in daily successful operation on different lines. Several others are in course of erection at the manufactories of Messrs. Hick & Co., Bolton; Messrs. Sharpe & Co., Manchester; and Messrs. Lawson & Sons, Leeds. Several carriages have also been in daily use on the Great Western line for some



months past, and are very highly spoken of. Upwards of 50 are being constructed at the works of Messrs. Fox, Henderson, & Co., near Birmingham, for the Mario Antonia Railway, under the superintendence of Mr. Brunel. Experiments, as to the exemption of this material from being affected by the severest frost, have been made by the patentees during the past winter at St. Petersburg and other parts of the continent, the results of which are quite conclusive. Many of the rings have also been subjected to a pressure of 60 to 100 tons, and reduced to the thickness of 1-16th of an inch without the slightest damage, resuming their shape immediately on the pressure being removed. One of the largest was lately put under Nasmyth's steam hammer, and after receiving more than 200 blows remained equally uninjured. They are also about being applied as bearing springs, both for engines, tenders, and passenger carriages.

#### REID'S MAGNETIC WIRE.

*Patent Dated October 29, 1846. Specification enrolled April 29, 1847.*

The introduction of the electric telegraph has rendered it an object of greater importance than it ever was before, to obtain wire of great lengths, and of an equal diameter and quality throughout. When Messrs. Cooke & Wheatstone first began their operations, the ordinary weight of iron wire bundles, averaging about 192 feet in length, did not exceed 14 pounds; and it must have taken, therefore, more than 27 such bundles for each mile of telegraph, involving as many risks of failure as there were bundles; for the bundles had to be welded together at the ends, and the united wires were almost always not only thicker at the welds or joints than elsewhere, but more brittle, and very often unsound. By the invention, which is the subject of the present patent, wire can be manufactured in bundles of upwards of 100 lbs. or, indeed, of any required weight or length. It consists, so far, in simply welding together (end to end scarfwise) the rods of iron before they are drawn into wire, and then passing them through the drawing machine, whereby the whole is not only produced of one uniform diameter, but any defects in the welding are instantly detected (through the strain required by the drawing process.)

Another valuable portion of this invention consists in an improved mode of preparing the wire for being coated with zinc, to protect it from oxidation, or, as is commonly termed, being galvanized. Hitherto it has been the practice to cleanse the wire by immersing it, or otherwise subjecting it to the action of sulphuric acid, or nitric acid; and it has been often much injured in structure from the acid not acting equally on all parts of the wire alike, or from some parts being longer exposed to its action than others. Mr. Reid dispenses with the use of acid altogether, and effects the cleansing wholly by mechanical friction. By an ingenious system of machinery, which is described at length in his specification, he cleanses from 6 to 12 lines of wire at a time, and not only with immense

rapidity, but with a degree of perfection wholly unattainable by the acid process.

#### RAILWAY VILLAGES.

We find that this subject is still under consideration in England. We hope it may be carried into operation.

*"Suburban Village Association."*—The prospectus of this company is before us. Its object appears to be the improvement of the poorer classes of London in a manner purely philanthropical. The plan is simply to transfer the homes of the mass of the laboring and mechanic classes from the heart of the metropolis to suburban districts, not more than ten miles distant; railways enabling conveyance therefrom without loss of time or inconvenience. If this extensive plan be carried into effect, the nation will owe another debt of gratitude to the introduction of railways; for it is by the facilities of transit which they afford that the present scheme has been suggested; without railways, the attempt would be hopeless. The association proposes to build villages of good and neat houses, with gardens, and to let them at such rents, that the profits shall not exceed 7½ per cent.; 2½ per cent. of which goes for depreciation, and the remaining 5 per cent. as interest on the money invested. The shares are divided into small denominations, so as to allow the inhabitants, people of moderate incomes, to take them up. Being holders of shares, the inhabitants may, having paid up in cash about an equivalent for its value, get the house he holds transferred to him in lieu of his shares. This is done to enable him profitably and advantageously to invest his savings. The head of each family will possess the right of a free passage over the railway to convey him to and from the metropolis once daily.

#### ITEMS.

*St. Germain Atmospheric.*—April 14.—The working of the line was inaugurated, and opened for traffic, and continued all day with the greatest regularity.

*The Great Dutch.*—On the 13th, a trial was made on the fourth section of the Dutch railway, from the Hague, by way of Delft, to Schiedam, which proved successful, and was remarkable in many respects. Among other circumstances, it was satisfactorily proved that the auxiliary railway has perfectly answered the purpose for which it was intended. The train, consisting of nine carriages, passed along the crooked and uneven way, to which perhaps there is no parallel, at a very rapid pace, without meeting with any obstruction. This trial was considered as very important, because the bridge over the Poldevart was used for the first time. As the works which are still necessary to complete the whole line to Rotterdam are but very trifling, we may hope that the whole way, connecting the capital with the second commercial city in the kingdom, will shortly be completed.

The Emperor of Russia is about to beat Mr. Brassey or Mr. Peto as punctual and rapid contractors. His Majesty, it is said, has given orders that the works of the railway

from St. Petersburg to Moscow shall be pushed forward with the greatest activity, and that the number of workmen at present employed shall be increased by 50,000 soldiers. It is stated that this line will be entirely completed in the course of the autumn of next year, and perhaps even sooner.

There is a talk of converting into a railway the old Carlisle canal, 11½ miles long, constructed 24 years ago, at a cost of £120,000, and carrying the trade by lighters between Liverpool and Port Carlisle. The directors have had a survey made, and Mr. Errington, the engineer, reports that the conversion may be made advantageously at a cost of £50,000, and the intention appears to be to offer it on lease to some of the contiguous railways.—*Railway Chronicle*, April 24.

*Narrow Gauge Speed.*—A special train of five carriages was taken from London to Birmingham on Wednesday morning in 2 hours 30 minutes. The actual time of travelling did not exceed 2 hours, being an average speed of 56 miles per hour, the train being stopped four times on the journey, to allow other trains to be clear of the line, besides stopping at Wolverton to change engines.—The engine which started from London, is (No 157) one of Mr. Stevenson's ordinary patent engines; and 21 miles of its journey was performed in 21 minutes. The maximum speed over upwards of a mile was 75 miles per hour. The engine from Wolverton to Birmingham was also a patent engine of Mr. Stevenson's, having three cylinders, and it performed the first part of the journey 41 miles (until it was stopped by another train) in 42m.; maximum speed on this portion of the journey 64 miles per hour. Lord G. Bentinck and several gentlemen going to the Chester races, were in the train. A side wind was blowing throughout the journey. Mr. O'Connell, (the locomotive superintendent) and Mr. Winter (the superintendent of Mr. Stevenson's patent engine) were on the engine, and describe the motion at the highest velocity as being perfectly steady.

*German Railways.*—The Journal des Debates gives the following as an official return on the general traffic in 1846: "On the 31st Dec., 1846, there were 40 lines, or branch lines, open to circulation in the German states (comprising Austria) giving a total length of railway of 592 German miles, or about 2400 English. Of these lines, 9 exceed in length 90 English miles. The number of passengers conveyed by these aggregate railways, was 16,411,299. Of these, 2,266,000 on the Baden line, from Mannheim to Friburg; 2,150,000 on the lines departing from Vienna; 1,900,000 on the Bavarian and Saxon lines; 1,284,000 on the lines starting from Berlin, etc. The transport of goods amounted to 1,591,097 tons; the aggregate receipts were £2,049,233, of which £560,000 was for the transport of merchandize. In 1845, the total receipts did not exceed £1,440,000, and the number of passengers was only 13,000,000. This shows an increased traffic of about 40 per cent. in favor of 1846, which is partly to be attributed to the completion of some of the lines.—*Railway Chron.*, May 1.

**Cornish Engines.**—The number of pumping engines reported this month is 25. They have consumed 2093 tons of coal; and lifted 20,000,000 tons of water ten fathoms high. The average duty of the whole is, therefore, 54,000,000 lbs. lifted one foot high by the consumption of a bushel of coal. The boilers are leaking at Sim's engine Casa Brea. They have had condensing work at South Wheel Florances. At United Mines, Cardoso's engine has leaky boilers. The boilers at United Hills are leaky. The steam pipes are uncovered at North United mines.

—*Lean's Engine Reporter, 10th April.*

**Railroad Speed.**—The Newark Advertiser mentions that the train of cars which left Philadelphia at 4½ o'clock P.M. on Tuesday, reached that city, about 11 miles from New York, a 8 o'clock. At this rate, the whole passage from Philadelphia to New York might be made in about four hours.

**Railroad Convention.**—Delegates from Ohio, Illinois, and Indiana, assembled in the State House in this city, last Wednesday, to adopt measures in furtherance of the proposed railroad from St. Louis to Cincinnati.

Gov. Bebb, of Ohio, was selected to preside over the deliberations of the convention. On assuming the chair, he stated the object of the meeting in felicitous and appropriate terms.

The sittings of the convention were characterized by a determined desire to do all, possible to be done, to give an impetus to the final consummation of the great object in view. The detailed proceedings will be given in our next.—*Indiana State Journal.*

**Accident.**—A passenger has informed the New York Tribune, that the train over the Fall River road, from Boston to Fall River, to take the 'Bay State' for New York, came in collision, about half past six on Wednesday evening, when near Stoughton, with the way train for Boston, from Fall River, with such violence as to render the locomotives inseparable, greatly damaging the way train cars, and seriously injuring about a dozen passengers, nearly all of the way train.—Happily, no person was killed. The thro' train was obliged to send 12 miles for a locomotive.

A passenger who came by the train from Boston, informs us that in his opinion, fifty persons were more or less injured. One lady had her face shockingly mangled, while others received greater or less contusions.

The cars of the Boston train were much damaged—the platforms of two were entirely broken to pieces.

**Chesapeake and Ohio Canal.**—The Cumberland, Maryland, Civilian contains an official announcement of the completion of the negotiations by which the sum of 1,100,000 dollars has been raised to complete the canal to Cumberland. The Barings take 300,000, Boston capitalists 200,000, Virginia 300,000, the contractors 200,000, and Washington, Georgetown and Alexandria 100,000. The Civilian hopes that in their next publication, they will be enabled to announce the arrival of the contractors to commence immediate operations on the line.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

## MISSING NUMBERS

OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**NOTICE TO CONTRACTORS.**—ANDROS-COGGIN AND KENNEBEC RAILROAD. Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Andros-coggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June. Satisfactory spirits will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston, May 8, 1847. 421

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD.**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Masonry and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

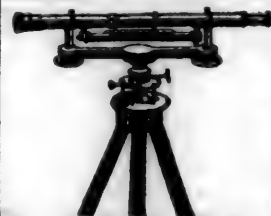
Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,  
T. FOLLETT, President.

Office of the C. & C. R. R. Co.,  
Burlington, Vt., April 29, 1847. 320



road Depots, etc. ANDREW MENEELY.  
West Troy, May 13, 1847. 1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

121f

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by  
JOHN W. LAWRENCE,  
149 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 331y

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 90 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

## LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Blooms Iron only. Address

SAML KIMBER & CO.,

Willow Street Wharf,  
Philadelphia, Pa.

41f

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent.

No. 139 Greenwich, corner of Cedar street.  
September 18, 1846. 1039

## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 461f

## TO CONTRACTORS.—KENNEBEC AND

PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Andros-coggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.  
GEO. S. GREENE, Eng. K. & P. R. R.

ENGINEERS OFFICE, K. & P. R. R.,  
Brunswick, Me., April 6, 1847. 1m16

## THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10 New York.



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES.—FOR THE USE OF MINES, RAILWAYS, ETC.** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**

75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LES.	OZ.	INCH.	LES.	OZ.		LES.	INCH.	Tons.
11	4 $\frac{1}{4}$	13	5	10	24	-		50	15-16	20
13	3 $\frac{1}{4}$	8	3	8 $\frac{1}{2}$	16	-		27	11-16	13 $\frac{1}{2}$
14	3 $\frac{1}{8}$	6	11	7 $\frac{1}{2}$	12	8		17	9-16	10 $\frac{1}{2}$
15	2 $\frac{3}{4}$	5	2	6 $\frac{1}{2}$	9	4		13 $\frac{1}{2}$	1-2	7 $\frac{1}{2}$
16	2 $\frac{1}{4}$	4	3	6	8	8		10 $\frac{1}{2}$	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**THE SUBSCRIBERS, AGENTS FOR**

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**  
59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

**DAVIS, BROOKS & CO.,**

Jan. 2. [11f] 68 Broad St., New York.

**RAILROAD SCALES.—THE ATTEN-**

tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The lovers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Conates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROX, Sup't of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845. **N. Jersey Railroad and Transp. Co.**

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] **JOHN LEACH,**

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

**NICOLL'S PATENT SAFETY SWITCH**

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee **G. A. NICOLLS,**  
Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. **THOMAS & EDMUND GEORGE,**  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons of finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 300 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

**REEVES, BUCK & CO.,**  
45 North Water St., Philadelphia,  
or by their Agent, **ROBT. NICHOLS,**  
79 Water St., New York.

29f

## DAVENPORT & BRIDGES'

### CAR WORKS, CAMBRIDGEPORT, MASS.

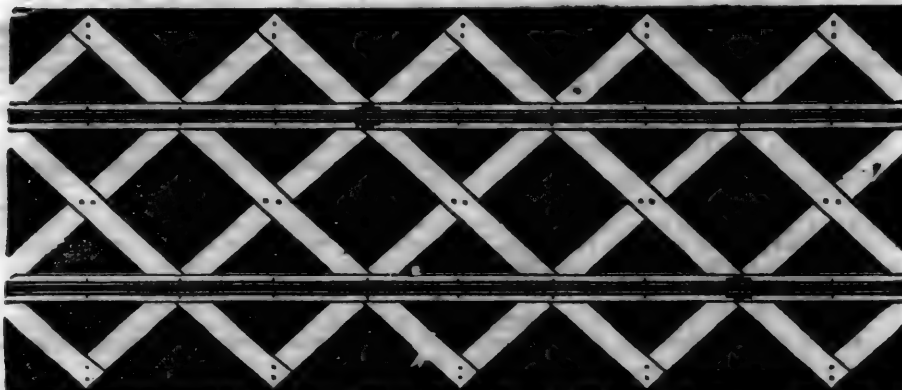


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =		
68,696 ft. b.m., at \$10 =		\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =		
4,403 ft. b.m., at \$13 =		57 24
13,000 Spikes = 2,350 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 334

### FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
**D. K. MINOR.**

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street, below Walnut, Philadelphia.  
1y10 near Third,

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25 28 Platt street, New York.

### RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

### ENGINEERS and MACHINISTS

**THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)**

**J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)**

**TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)**

**ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)**

**S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)**

**NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)**

**FRENCH & BAIRD, Philadelphia. (See Adv.)**

**NEWCASTLE MANUFACTURING COMPANY, NY, Newcastle, Del. (See Adv.)**

**ROSS WINANS, Baltimore, Md.**

**CYRUS ALGER & Co., South Boston Iron Co.**

**SETH ADAMS, Engineer, South Boston.**

**STILLMAN, ALLEN & Co., N. Y.**

**JAS. P. ALLAIRE, N. Y.**

**PHENIX FOUNDRY, N. Y.**

**ANDREW MENEELY, West Troy.**

**JOHN F. STARR, Philadelphia, Pa.**

**MERRICK & TOWNE, do.**

**HINCKLEY & DRURY, Boston.**

**C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.**



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 24)

SATURDAY, JUNE 12, 1847.

[WHOLE No. 573, VOL. XX.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

### RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	30 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

## BOSTON AND PROVIDENCE RAILROAD.

Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3 p.m.; Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m. All baggage at the risk of the owners thereof.

31 ly W. RAYMOND LEE, Sup't.

BRANCH RAILROAD AND STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

## PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

	Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50 and \$3 00		
" " Reading,	58	2 25 and 1 90		
" " Pottsville	34	1 40 and 1 20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## LEXINGTON AND OHIO RAILROAD.

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

## BOSTON AND MAINE RAILROAD.

Upper Route, to Portland and the East.

SUMMER ARRANGEMENT, April 1, 1847.

PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.

Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 5 P.M.

Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.

Leave Haverhill at 6½ A.M. and 4½ P.M.

READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.

Leave Reading at 6 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.

Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$50 additional value.

1y31 CHAS. MINOT, Super't.

## NORWICH AND WORCESTER RAILROAD.

Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 6½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't

## NEW YORK AND ERIE RAILROAD LINE.

SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½ A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24K H. C. SEYMOUR, Sup't.

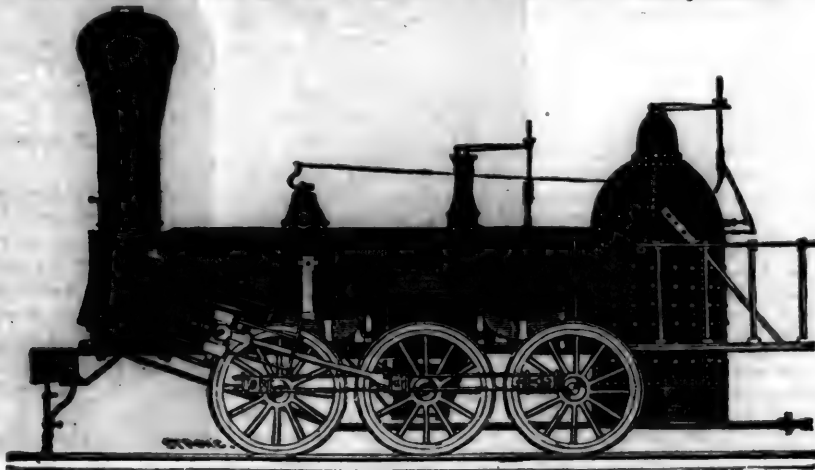




ly **JOAN F. WINSLOW, Agent,**  
**Albany Iron and Nail Works,**

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va. }  
J. R. Anderson, Tredegar Iron Works, Richmond, Va. }  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn. }  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R. }  
New Jersey Malleable Iron Co., Newark N. J. }  
Gardiner, Harrison & Co. Newark, N. J. }

25,000 to 30,000 made weekly.

35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by

Mar. 20th

4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 ft, two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 300 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

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J. BALL & CO.



**Delaware and Hudson Canal Company.**  
**Annual Report of the Board of Managers of**  
**the Delaware and Hudson Canal Com-**  
**pany to the Stockholders, March 30, 1847.**

It is with much satisfaction that the Board again meet the Stockholders, under circumstances of continued prosperity on the part of the Company.

The usual statement of the year's business, herewith submitted, shows a net profit of \$582,767 27, being a fraction over twenty per cent. on the capital stock paid in.

It will be perceived also, by this statement, that the item of "repairs and superintendence of Canal," in 1846, exceeded the average of former years, by about \$30,000.

This was mainly owing to an extraordinary flood at the breaking up of the Delaware River, in the month of March, when the water was higher than during the great flood of 1841, which was so disastrous to the Lehigh and Schuylkill Canals, as well as our own. Against the recurrence of such an event provision has been made, by raising and strengthening our canal banks, etc., so that they are now deemed capable of resisting the action of a similar flood; and the occurrence is adverted to, principally to account for the extraordinary canal expenses chargeable to the year.

The quantity of coal brought to market during the year 1846, by this company, was 318,000 tons, which will be considerably increased during the current year.

There is an increased demand for Lackawanna coal, and the market for it is daily expanding; than which, no stronger assurance can be given of the favor in which it is held.

The canal and railroad are both in excellent condition. Thus far the spring floods have done no damage to either.

The railroad has been in operation during most of the winter, and the canal will be opened as soon as the weather will permit.

At the annual meeting of the Stockholders, in March, 1845, an increase of the capital stock of the Company was authorised. This measure was intended to provide,

1st. For an enlargement of the canal, so as to increase the capacity of boats navigating it, and thus reduce the freight which had been previously paid.

2d. For alterations, improvements, and extension of the railroad, so as to increase its capacity and economise on its former mode of working.

3d. For additional mercantile capital, for the prosecution of an enlarged business.

4th. For the redemption of the bank circulation and the stock loaned by the State to the Company, which will become due the 1st of January, 1848, and 1850.

Fifty per cent. upon the new stock having been paid in, it may be satisfactory to the Stockholders to receive some explanation of what has been done in relation to the two first objects.

In regard to the first, (the enlargement of the canal,) the Board beg leave to refer to a document herewith submitted, being an extract from a report on this subject, made to

the Board by R. F. Lord, Esq., the engineer in charge of the canal, under whose supervision this important improvement was projected and executed. It will be perceived that it has been effected thus far without interruption to the navigation of the canal, at an expense of \$253,363 80

A further expenditure of about \$12,000 will complete it.

The benefits, past and prospective, resulting to the Company from this outlay, and the merit of the engineer, to whose care the work was committed, will be fully appreciated on a perusal of the document referred to.

In this connection it may be remarked, that under the supervision of the same officer, the Board has deemed it expedient to commence, and considerable progress has already been made, in the erection of aqueducts across the Lackawaxen and Delaware rivers, near their confluence. These structures, when completed, will prevent the interruption which has frequently occurred in the navigation of the canal, in consequence of high water during spring and fall floods. It will shorten the canal about half a mile, and place a portion of it on a higher level, thereby protecting it from inundation, to which it has heretofore been exposed, and from which it has frequently sustained serious injury. In this work there has been expended the sum of \$23,932 74 and it will require upwards of a year to complete it.

During the same time, and as preparatory to, and rendered necessary by the prospective increase of the Company's business, a new insular dock has been constructing in the stream at Rondout, containing about fourteen acres. It will furnish ample space and facility for receiving and shipping coal to almost any extent, besides making a safe harbor and capacious basin for canal boats, with convenient yards for building and repairing them. There has been expended on it thus far, \$44,783 15

It is now in condition for use to a great extent, and will be completed in the course of the present year.

In relation to the second object, (alterations, improvements, and extension of the railroad,) the Board would refer in like manner to a report herewith submitted, from James Archbald, Esq., the engineer in charge of the mines and railroad. This great work is the result of his genius and forecast; and, like the enlargement of the canal, has been executed without any interruption to the regular business of the Company. It is now substantially completed, and has cost \$328,800 46

On the above objects there has, therefore, been expended the aggregate sum of

\$650,970 15

To this may be added, for the redemption of bank circulation, additional canal reservoirs, barges, canal boats, new openings in coal mines, railroad cars, and other appliances of the enlarged business for which the Company is preparing, a further expenditure (since the increase of the capital stock) of

\$171,725 93

making the total sum

\$822,696 08

In reference either to the foregoing, or to the third and fourth objects for which the capital stock was increased, it is not contemplated to make any further call on the stockholders until it becomes necessary to provide for the redemption of the State stock, \$500,000 of which will become due on the 1st of January, 1848; and the balance, \$300,000, on the 1st of January, 1850.

The Board scarcely deem it necessary to reiterate their former expressions of confidence in the continuance of prosperity to the Company; the ordeal through which it has passed ought to remove all doubt on that head. It possesses so many elements of success that it is insured by a judicious and energetic use of them. Its progress to its present position, if slow, has been sure and steady, though occasionally varied in aspect by fluctuations in the price of the great staple which is the basis of its business. The depressing influence of this cause has probably been felt in its greatest severity, and its effect was, not to blast, but simply qualify the prosperity of this Company; while kindred institutions, whose uncompromising hostility to each other produced the evil, were, and yet are, receiving no remuneration for their labor and capital. It may reasonably be presumed that ere long the lessons of experience will have their due weight—that self interest will induce the adoption of wiser counsels by the several companies, whose policy seems to be regulated by a struggle for victory and triumph, rather than profit; and, that a consequent advance in the price of coal, will soon afford to all, some return for the capital invested in mining and transferring it to market. When this event occurs, the prosperity of this Company will be greatly enhanced.

By order of the Board,  
 JOHN WURTS, President.

**Statement of the Business of the Delaware and Hudson Canal Company, for the year ending March 1, 1847.**

To coal on hand March 1, 1846.....	\$35,855 00
" Mining coal.....	213,564 15
" Railroad transportation and repairs.....	144,271 85
" Freight of coal to Rondout.....	286,061 03
" Canal repairs and superintendence.....	109,878 01
" Labor and expenses at Rondout.....	29,368 60
" Interest on state stock.....	38,150 00
" Rents, salaries, current expenses, etc., New York.....	21,808 55
Balance.....	582,767 97
	<hr/> \$1,464,344 45

By sales of coal.....	\$1,330,568 22
" Canal and railroad tolls.....	26,068 65
" Interest received.....	31,598 58
" Coal on hand.....	76,119 00
	<hr/> \$1,464,344 45

Balance.....\$ 582,767 97

ISAAC N. SEYMOUR, Treasurer.  
 NEW YORK, MARCH 1, 1847.

**Statement of articles transported on the Delaware and Hudson Canal during the year 1846.**

Merchandise.....	10,063
Plaster.....	752
Cement.....	7,840
Tanners' bark.....	168
Leather.....	2,188
Stone, brick, and lime.....	2,038

Millstones.....	184
Staves, hoop-poles and lath.....	1,245
Manufactures of wood.....	1,763
Glass and glassware.....	771
Charcoal.....	730
Sundries, posts, rails, pig iron, etc.....	480

Tons.....28,242

Cords of wood.....	2,971
Number of shingles, pine.....	13,900
Do do hemlock.....	278,900
Ship timber, in cubic feet.....	48,375
Hardwood lumber, in board measure.....	3,170,223
Pine do do do.....	739,465
Hemlock do do do.....	6,774,724

*Statement of tolls received on the Delaware and Hudson Canal and Railroad in each year since the completion of the works:*

1830.....	16,422 44	311,937 59
1831.....	20,554 64	40,095 26
1832.....	28,717 51	35,450 46
1833.....	37,004 58	39,388 19
1834.....	36,946 07	33,894 93
1835.....	41,976 82	30,996 53
1836.....	45,154 73	33,525 61
1837.....	44,832 42	25,880 92
1838.....	40,328 38	26,068 65

\$311,937 59

\$577,238 14

*The following is a statement of the quantity of Anthracite Coal shipped from the three principal mining districts in Pennsylvania, since the commencement of the Coal trade, to January 1st, 1846.*

Schuykill	Lehigh	Lackaw.	Total.	Increase	Decr.
'20.....	365	.....	365	.....	.....
'21.....	1,073	.....	1,073	708	.....
'22.....	2,240	.....	2,240	1,167	.....
'23.....	5,823	.....	5,823	3,583	.....
'24.....	9,541	.....	9,541	3,718	.....
'25.....	6,500	98,393	34,893	25,352	.....
'26.....	16,767	31,280	48,047	13,154	.....
'27.....	31,360	32,074	63,430	15,387	.....
'28.....	47,248	30,239	77,516	14,082	.....
'29.....	79,973	25,110	112,083	34,567	.....
'30.....	89,984	41,750	174,734	62,651	.....
'31.....	87,854	40,966	182,860	8,086	.....
'32.....	209,271	75,000	368,871	186,051	.....
'33.....	250,588	122,621	484,986	116,115	.....
'34.....	224,242	106,244	374,186	.....	110,800
'35.....	335,695	131,250	587,780	183,594	.....
'36.....	443,754	146,738	695,092	137,313	.....
'37.....	523,152	223,902	874,539	167,349	.....
'38.....	434,684	212,831	723,836	.....	150,704
'39.....	442,608	220,645	785,553	61,717	.....
'40.....	452,391	225,288	836,049	40,496	.....
'41.....	584,692	142,158	919,120	93,071	.....
'42.....	541,000	272,129	1,018,352	99,262	.....
'43.....	706,513	267,734	1,201,852	183,470	.....
'44.....	839,334	377,821	1,468,760	266,908	.....
'45.....	1,063,824	429,159	1,779,055	310,295	.....
'46.....	1,236,583	592,297	2,118,400	339,345	.....

*Extract from a report of R. F. Lord, Esq., dated January 6th, 1847.*

The original plan upon which the canal was constructed afforded four feet depth of water, and a maximum capacity for boats carrying cargoes of 30 tons.

The lowest rate of freight for which boatmen had been obtained in the coal business, up to the year 1843, was \$1.34 per ton; and it is not probable, that for any considerable increase of business, they could have been retained at that rate; for at that they were more or less transient, and frequently abandoned their boats.

In the month of September, 1842, a plan was adopted for enlarging the canal, to be accomplished by raising the height and in-

NOTE.—The above Table does not include the Shamokin and Wilkesbarre districts.

creasing the strength of its banks and appendages, with materials taken mainly from its bed and berm side, below the surface of the usual boating head, sufficient to sustain 5 feet depth of water, improve its channel, and make it competent for boats to navigate it, carrying 40 ton cargoes, with a view of making a more desirable business for boatmen, and thereby reduce the rate of freight.

The improvement was commenced in the fall of 1842, and was prosecuted to considerable extent the ensuing winter, in order to realize in part its benefits for the year 1843, and to have it completed during the season of 1844.

The depth of water was gradually increased during the season of navigation, as the banks were prepared to sustain it. Its immediate effects were apparent, from the boats which were adapted to the former head of 4 feet, being able to carry an increased cargo, in proportion to the additional depth of water. The best class of these boats had their sides raised in order to improve the offered advantages; and new boats were built on an enlarged plan, to correspond with the improved canal.

At the close of the year 1844, a review of the improvement exhibited the following result:

There had been expended for enlargement of canal, in 1842, \$8,400 00  
1843, 61,228 25  
1844, 38,810 62

Making the amount up to the close of the year 1844 equal to \$108,438 87

For the business of the year 1843, the boats commenced the season laden with cargoes the same as they carried in 1842; and, although they moved with greater facility in consequence of the improvement, and were able to carry cargoes of 40 tons before the close of the season, the average cargoes of all the boats, taken for the whole season, does not clearly exhibit the advantages derived that year from the enlargement. The average cargoes for all the boats during the whole season, were 34½ tons, and the average freight on the whole business of the year was \$1.03 per ton; being a reduction of 31 cents per ton on 227,005 tons of coal, (the quantity in 1843,) and equal to the sum of \$70,557 55

For the year 1844, the old pattern boats averaged 36½ tons; those of them that had been raised, 39½ tons; and the new boats built for the enlargement, averaged 42½ tons. All the boats taken together for the whole season, averaged 40½ tons per cargo, or trip; and the average rate of freight was 97 cents per ton, being a reduction from the rate in 1842 of 37 cents per ton, on 251,005 tons of coal, (the quantity in 1844,) equal to the sum of \$92,871 85 showing the reduction of freight for 1843 and 1844, to have been \$163,429 40

Deduct the amount expended for enlargement up to close of 1844 \$108,438 87 we have an excess in favor of enlargement equal to \$54,990 53

After a review of the advantages derived from the enlargement of canal up to the close of the year 1844, it was resolved to continue

the improvement on the same plan, and increase the depth of water to 5½ feet, making the canal competent to the navigation of boats laden with 50 tons; and the requisite work has been progressing during the years 1845 and 1846, being now nearly completed.

There was expended during the year 1845, to complete the first contemplated enlargement, and to continue the improvement in view of increasing the capacity of canal up to the transit of boats laden with 50 tons, the sum of \$65,314 93

There has been expended during the year 1846, in continuation of the enlargement, including about \$26,000 in raising guard banks, etc., to afford greater protection against extraordinary floods, the sum of \$79,610 00 Making the aggregate amount for enlargement in 1845 and 1846, \$144,924 93

In the year 1845 there was an extensive drought, which deranged the navigation more or less during 53 days; and during that period, the boats were laden with light cargoes, and an advance of freight made to compensate the boatmen. In consequence of this, the average tonnage and rate of freight for this year does not exhibit so fully the advantages of the enlargement, compared with the season of 1844. The new boats built for the enlarged canal, during the time there was a full supply of water in it, averaged 45½ tons, and all the boats for the whole season averaged 42½ tons; the average rate of freight, including the premium paid for the whole season, was 97 cents per ton, being a reduction from the rate of 1842, of 37 cents per ton, on 266,072 tons of coal, (the quantity in 1845,) equal to the sum of \$98,446 64

For the year 1846, the new boats adapted to the enlargement, averaged 46½ tons, and carried cargoes of 50, 51, 53, and 54 tons in the latter part of the season. All the boats, for the whole season, averaged 46½ tons per trip, and the average rate of freight was 91½ cents per ton, being a reduction of 42½ cents per ton from the rate paid in 1842, on 318,400 tons of coal, (the quantity in 1846,) equal to the sum of \$136,116 00 showing a reduction in freight for 1845 and 1846, of \$234,562 64

Deduct the amount expended for enlargement during the years 1845 and 1846 \$144,924 93 we have in favor of enlargement for 1845 and 1846 \$59,637 71

Add the balance at the end of 1844 \$54,990 53 Balance in favor of enlargement at close of 1846 \$144,628 24

For a comparative view of the increased capacity of the canal, suppose we pass 96 boats per day, (which would be but four boats each way per hour for 24 hours,) laden 50 tons each, equal to 4,800 tons per day; and the navigation open 180 days, (it was 192 in 1846,) it would give per annum 864,000 tons.

Ninety-six boats per day, laden 30 tons, would be 2,880 per day, and for 180 days, only, 518,400 tons.

By this we have an annual increased capacity of 345,600 tons.



To understand the way in which our work is now done on this part of our road, (F to H, profile B,) we must go back to the foot of No. 7, at F, from which point we occupy for our loaded track, six miles of the first road, extending to No. 8; but instead of descending that plane, (as on the old arrangement,) our new road continues on at the same grade, viz: (forty-four feet per mile) all the way to Honesdale, thus making an uniform descent for ten miles, sufficient to enable the loaded cars to run by their own gravity the whole of this distance without stopping. (See black line marked "loaded car road," on profile B, from F to H.) For the return of the empty cars from Honesdale back to No. 7, we have

constructed another track, entirely different in its location from that used by the loaded cars, and employ stationary engines to draw up the cars to such elevations as enable them also to run by gravity from one engine to the other. (See chain and dotted line marked "empty car road," profile B, representing the empty track.)

On account of the hilly nature of the country, five engines were required for the ten miles; four of which were originally steam engines, and one a water wheel. In making locations for these engines we kept in view the economy of water instead of steam power for this kind of work, and were so fortunate as to find situations for all of them, (except the one at Honesdale,) where water could be used whenever the owners of it would sell at prices which it might be expedient for the Company to pay. Last year we accordingly made a purchase which gave us the control of water for one of these engines, (No. 5,) and changed it for a water wheel. This year we have been able to purchase land giving the control of water for the other two engines; one of which we shall change this winter, and the other the winter following, when four of the five engines will use water to do their work.

It may be proper here to state, that the work necessary for the construction of our new road was commenced in 1842, and nearly completed in 1844; we have, therefore, two years experience of the expediency of the change. This, I am happy to say, is fully equal to our most sanguine expectations.

The preceding descriptions include all the principal alterations made upon our main railroad from Carbondale to Honesdale. At this place, also, we have had to make some important additions to our original work, in order, (principally,) to enable us to deposit, during the suspension of canal navigation, the greater part of the coal brought over the railroad, amounting to from eighty to one hundred thousand tons. To this end it was requisite to provide ground to hold such quantity within reasonable extent, together with the engine power and machinery necessary to elevate, so that it can be piled with economy and despatch, and with the increased facilities called for by our enlarged business, to load boats, screen coal, and separate it into various sizes, carry off the cumin, or refuse dust, etc.

We have now a main road and machinery capable of sending to market five hundred thousand tons a year, or four hundred thousand tons more than was originally contemplated.

In view of this increased capacity of our main railroad from the mines at Carbondale to the canal, it was deemed advisable, as early as 1843, to commence an extension of it some seven miles further down the valley to the Company's coal lands in the township of Blakely, in order to procure a part of the coal sent to market from this field. This extension is now finished, and mines in progress of being opened at its termination, by which we will be able, by the first of May next, to deliver from three to four hundred

tons per day. A profile of this road marked C, is drawn upon the same sheet with the others; by reference to which it will be perceived, that it is constructed upon the same plan as that part of our main road from No. 7 to Honesdale, with two tracks, descending in contrary directions; on one of which the cars, after being loaded at the mines, (point A on profile C,) are drawn up from A to B by two stationary steam engines; from which elevation they run by gravity to Carbondale, a distance of seven miles, where they connect with the main road, near the foot of the water plane, (at I on profile C.) On the other track the empty cars are elevated at Carbondale, or from D to E, by one steam engine, and run from thence to the mines at A, (see line marked "empty car road," on profile C,) a distance of seven miles by gravity, on a descending grade of fifty feet per mile.

A slight examination of this plan of road will show the simplicity of all its arrangements and fitness for our business.

I have thus far confined my explanations to the changes, improvements and extension of railroad and engine power, the cost of which is charged to increased capital. The aggregate amount expended for these objects, and charged to capital, may be taken at three hundred and twenty-eight thousand eight hundred and ninety dollars and forty-six cents, (\$328,890 46.) Large as this expenditure may appear, the Company will be amply remunerated for it in a few years, by the increased capacity of the road and the greater economy with which it is worked.

It ought also to be kept in view, that the progress of our business has required extensive additions to both mining and transportation departments, necessarily involving a large expenditure from which we have not yet derived much benefit. This will be realized hereafter. Part of this outlay has been charged in the account of current expenses, and the remainder to an account for improvement, of which a portion is charged to each year's business, as it may be estimated to have received benefit. In conclusion I think I can safely say, that we are now in a state of good preparation for the business of the year; and that, unless some unforeseen difficulties occur, we shall accomplish all that was contemplated.

Respectfully, Yours,  
JAMES ARCHBALD.

#### Increase of Travellers leads to Diminution of Fares.

Already we have 10,000 miles of railway made, making, or sanctioned, superseding more or less the 25,000 miles of turnpike-roads which exist in England and Wales. As railways have spread, travellers have increased in number, and fares have been diminished. In 1845, the London and Birmingham conveyed more than treble the number of passengers over twice the number of miles, for less than double the amount received in 1839.

Half-year ending June	Passengers.	Miles.	Receipts.
1839,	267,144	17,391,035	£370,241.
1845,	612,904	38,758,260	447,190.

—Sidney's Speed on Railways.

This result usually follows the reduction of fares.

EXPERIMENTS ON VERY HEAVY GRADIENTS, have recently been made by Mr. D. Gooch, of the Great Western, and duly recorded in the columns of the *Morning Herald*. They took place on the portion of the Swindon and Gloucester line lying between the 98½ and 95½ mile posts. The line, for the whole of this distance is a series of 8 curves, varying from 2000 to 3600 ft radius; and the starting point, from which the experiments commence, viz. the 98½ mile post, is on a rising gradient of 1 in 105. This gradient extends to a little more than a furlong, and is succeeded by a rising gradient of 1 in 75 for about half a mile. There is then a rising gradient of 1 in 70 for nearly a quarter of a mile, followed by a rising gradient of 1 in 75 for rather more than three-quarters of a mile. We then come to a level of about a quarter of a mile. There is then a rising gradient of 1 in 70 for nearly a quarter of a mile, and next a rising gradient of 1 in 60 for nearly three-quarters of a mile. It was over these severe gradients (all of them on curves) that the power of the locomotive was tested, and, in order that the power might be really and commercially tested, the train was brought to a dead stand upon the incline of 1 in 105. The first experiment was with 50 tons exclusive of the engine and tender. It was taken by the "Great Western" engine, which was 8 ft. driving wheels, 18 in. cylinder, and 2 ft. stroke. The train left the 98½ mile post at 12 h. 47 m. 15½ s., and reached the 95½ post at 12 h. 53 m. 14 s. performing the 2½ miles in 5 m. 58½ s., or at an average speed of 27 miles an hour. The second experiment was with 60 tons with the same engine. The train started at 1 h. 56 m. 12½ s., and passed the 95½ mile post at 1 h. 32 m. 54½ s. doing the distance, therefore, in 6 m. 42½ s., or at the average rate of about 24½ miles per hour. The third experiment was with 111 tons, drawn by two locomotives—the "Dreadnought" goods engine, with 5 ft. wheels, 16 in. cylinder, and 5 ft. stroke, and by the "Great Western."

The train started at 3 hours 55 minutes 47½ s., and passed the 95½ post at 4 h. 2 m. 16½ s. The distance was therefore performed in 6 m. 29 s., or at the average rate of 25 miles per hour. The fourth experiment was with the same load of 111 tons, with the "Dreadnought" alone. The train left the starting-place at 4 h. 34 m. 57½ s., and passed the 95½ post at 4 h. 42 m. 42½ s., and doing the distance in 7 m. 45 s., or at the average rate of about 23 miles per hour. The fifth and last experiment was with 70 tons, with the "Great Western." The train started at 4 h. 26 m. 7½ s., and passed the 95½ post at 4 h. 33 m. 51½ s., being therefore 7 m. 44½ s. on the journey, and performing the distance at an average speed of about 23 miles per hour, doing, therefore, not more than the coupled goods engine had just performed with 111 tons. The moment before the "Great Western" started with the 70 tons a slight sprinkling shower came down and wetted the rails.—*Railway Chronicle*.



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, June 12, 1847.

#### Delaware and Hudson Canal.

We give in this number of the Journal the Annual Report, entire, of this Company. The prosperity of this work is almost as gratifying to those—not interested in its stock—who have watched its course during the past twenty years, as it is to those of its early shareholders, who have adhered to it through "good report and evil report," until they are reaping a rich reward for their perseverance. It is deserving of a more extended notice than we can now give—but we shall probably again refer to it, and can only add that it should be read by every friend of internal improvement, and every consumer of anthracite coal in the country.

We give annexed a list of the Directors and Officers of the Company for the current year.

#### OFFICERS OF THE DELAWARE AND HUDSON CANAL COMPANY, FOR 1847.—MANAGERS.

John Wurts,	Aquila G. Stout,
Philip Hone,	Henry Young,
Wm. M. Halstead,	Jacob R. Le Roy,
Isaac L. Platt,	Irish Hawley,
Allison Post,	Wm. S. Herriman,
Silas Holmes,	Cyrus Hitchcock,

Charles N. Talbot.

John Wurts, President.

Isaac L. Platt, Vice-President.

Isaac N. Seymour, Treasurer and Secretary.

#### Tunnel.

Our Canadian friends are becoming a great people. They have secured the construction of a Railroad bridge over the Niagara river below the falls. It is now said they will make a tunnel under the St. Lawrence river at Montreal to enable the Boston Railroad to enter the city. The river at that place is 40 feet deep and one third of a mile wide. The tunnel is estimated to cost a million of dollars.

#### Singular Discovery in Mississippi.

The Louisville Journal, in a recent article says: "In the South-western part of Franklin county, Miss., there is a platform or floor of hewn stone, neatly polished, some three feet under ground. It is about one hundred and eighty feet long, and eighty feet wide. It extends due north and south, and its surface is perfectly level. The masonry is said to be equal, if not superior, to any work of modern times. The land above it is cultivated, but thirty years ago it was covered with oak and pine trees, measuring from two to three feet in diameter. It is evidently of very remote antiquity, as the Indians who reside in the neighborhood had no knowledge of its existence previous to its recent discovery. Nor is there any tradition among them from which

we may form any idea of the object of the work, or of the people who were its builders. There is also a canal, and well connected with it, but they have never been explored. A subterranean passage may be underneath. Farther explorations may throw some light upon its origin."

#### New Style of Locomotive.

The plan of Mr. NICOLLS, civil engineer of the Reading Railroad, is about to be introduced into use upon that road, which is intended to consume anthracite coal. The boiler is intended to be placed upon one set of wheels, and the engine upon another, working free and independent of it, with the connection between the engine and boiler formed by means of a copper pipe working flexibly by means of a universal joint.

It is intended to be used upon the principal of low pressure, by condensing, similar to the plan now most approved upon steamboats. We have always been of the opinion that locomotives upon this road, more particularly than upon any other, should use coal instead of wood for fuel, both as regards economy and policy. Whether Mr. Nicolls has hit upon the most judicious plan of accomplishing this object we shall be better able to judge from actual experiment. A substitute of coal for wood, we understand, would make a saving to the company of over one hundred thousand dollars a year—quite an item.

#### Rochester Flour Trade—Canal Tolls.

From the Rochester Democrat we learn that the amount of flour shipped east on the canal from the opening of navigation to the 15th of May, is as follows:

1847.....	68,992
1846.....	52,823

Increase in 1847.....16,169

It will be seen that the amount shipped in two weeks of 1847 exceeds that of four weeks in '46 by over 16,000 bbls.

The following is a statement of the tolls collected at the port of Rochester, on the Erie and Genesee Valley Canals for the first two weeks of navigation: From May 1st to May 15th, 1847.....\$25,993 92  
First two weeks in 1846.....8,288 37

Increase in 1847.....\$17,710 55

The canal opened last year on the 16th of April; this year, May 1st. The following will show the tolls collected from the opening of navigation to May 15th each year:

1847.....	\$25,993 92
1846.....	10,454 76

Increase in 1847.....\$15,544 16

It will be noticed that the tolls collected in two weeks of 1847, are more than double the amount collected in four weeks in '46.

#### Air-Line Railroad between New York and Boston.

The point on which much anxiety has been felt in connection with this subject, has been settled for the present, in regard to the Massachusetts section. Notwithstanding the Committee to whom the subject was referred, may have been somewhat influenced by the interests of the existing Railroad Corporations, the route decided on will not materially vary the distance from that of the true air-line route.

This route, which is the one petitioned for by Nathaniel Miller and others, commences at the terminus of the Walpole Railroad in Walpole, thence passing through Wreatham, Franklin, Bellingham, and a corner of Blackstone, through the village of

Waterford in the town of Blackstone, to the west side of Blackstone River, opposite the village of Blackstone, and there intersecting with the Providence and Worcester Railroad. The length of the line to be constructed on this route is 17 miles, of which 14 are a straight line. It has no curve of a less radiance than 3800 feet, and the maximum ascent is 35 feet to the mile for 3½ miles. The principal objection, if any, to this route, is the inconvenience of subjecting the immense business of this road in any measure to the control of another company. But this may be the best route, nevertheless.

#### Grand Improvement in Iron Manufacture.

The machinery of most of the furnaces erected within the year past, is operated by water power; but by the recent introduction of certain important improvements in which steam power has a decided advantage, it is thought it will generally be adopted in preference. At Jackson's furnace, at Westport, Mass., steam power is employed, and the advantages thereof together with those of the improvements referred to, are such that the cost of the manufacture has been reduced nearly 40 per cent. A flue is placed within the furnace chimney or funnel, and extends nearly to the top; and by this flue the hot gas and smoke is returned and brought down to the end of the steam-boiler furnace, where it passes through a perforated iron plate when it comes in contact with atmospheric air, whereby a brilliant combustion is produced, and this flame passing under the boilers, generates as much steam as is required for all the business of the furnace, and drives a mill besides. Another improvement has been projected by a gentleman connected with the iron business in Massachusetts, by which this hot gas from the furnace is first passed through a series of chambers, enclosing ovens filled with wood, which is thereby perfectly charred; the gas being afterwards passed to the engine furnace, mixed with air and ignited, produces an intense flame. The wood is thus converted to charcoal without expense, and the pyroligenous acid produced in the process, is ordinarily sufficient to pay the entire first cost of the wood; thus furnishing charcoal for the iron furnace free of expense.

#### Important Improvement in Steam-Engines.

Mr. C. C. C. Smith, an ingenious mechanic of Boston, is engaged in perfecting an arrangement of the parts of the common steam engine, in such a manner as to nearly supersede the use of the pumps, prevent entirely the incrustation of the boiler, and save much of the ordinary requisite attention of the engineer. The principle, says the Scientific American, may be thus explained:

The boiler is at first supplied with the required quantity of water, and when the steam is raised, and the engine started, the exhaust steam is immediately condensed in a cold receiver, and the water produced by the condensation, is, by the operation of the machinery, forced back into the boiler, without allowing a particle of the steam to escape, thus securing an uniform quantity of water in the boiler. And whenever it is requisite to blow off steam, the escaping steam is also condensed and immediately returned to the boiler. We are aware that the celebrated Perkins attempted the use of this principle in part, with his extra-high pressure engines, but did not succeed; nor did he attempt the condensation of the steam from the safety valve. And it is certain that this plan has never been successfully applied to low pressure engines, though we see no good reason why it may not be done. We would encour-

rage Mr. S. to persevere till he has brought this important desideratum to practical perfection.

#### The Telegraph System.

We have received the following communication in reply to our remarks in the Journal of 10th of April on this subject. It has been delayed, in consequence of our absence, longer than it should have been, as we desire always to give our readers both sides of every question of importance on which we hold views different from those interested. We aim to give the truth—and are always open to conviction.

We shall, in our next, give a synopsis of the arguments against the bill alluded to by Mr. Kendall. WASHINGTON, MAY 26th, 1847.

D. K. Minor, Esq., Editor of the American Railroad Journal.

Sir—A friend has put into my hands a number of your paper dated the 10th ult., containing an editorial article, headed "The Telegraph System," which I deem it my duty to notice.

You say "It is generally understood that Mr. Kendall refuses to sell the patent on any route or to allow its use on any terms, other than on the condition of the patentees having, as a consideration for the use of the patent, one half the stock or property in any line on which it may be used."

You have been greatly misinformed on this point. A line from Philadelphia, through Reading to Pottsville, has been absolutely sold and paid for, and several others in Pennsylvania have been bargained away in the same manner. And I am happy to inform you and your readers, that *every line in the Union, not already bargained away, is for sale in like manner without any reservation of stock or property therein whatsoever.*

You are equally in error where you say, that "a further objection to the whole system is, that imperfect as it is, it has become a monopoly of the closest kind, and threatens to be one of monstrous character. Some two or three, or a small number of individuals, of whom Mr. Kendall is the copartner and agent, owning under this system, *one half the stock, have the absolute control of all the telegraphs in the United States, with the power of taxing, to any extent, the transmission of intelligence, however imperfectly the duty may be performed.*"

I have already shown you that on some of the lines the persons alluded to neither exercise nor possess any power whatsoever.

Nor do they possess a controlling power over any of the organized companies in which they are stockholders. Under their Articles of Association, no stockholder can give more than one sixth of the aggregate vote. This restriction reduces the power of the Patentees far below one-half, even where they hold half the stock, and give the other stockholders a preponderance equal to sixteen against four.

That preponderance in the company which has honored me with its Presidency, has been largely augmented by the sale of one fourth of the Patentees' stock, and their power now, in the vote of that company, is but as seven to twenty, and no more.

The same restriction exists and a portion of the Patentees' stock has in like manner been sold in the New York, Albany, and Buffalo Company.

In the original contract for the line west from Philadelphia only *one-fourth* of the stock, and of course but a fourth of the power was reserved to the owners of the Patent.

It is there, that in some contracts upon which companies have not yet been organized, there is no restriction upon the vote of the stockholders. But is it supposed by any man, that the object of the Pa-

tentees or myself in this enterprise is power? No; it is money. We sell all the small lines absolutely, and sell half of the great lines for means to build the other half, except so much of the stock as we choose to retain as a permanent investment. We care nothing for the power, and cheerfully yield the management to the other stockholders, and shall do so as long as abuses do not require our interposition.

You may not be aware, that when I became Prof. Morse's Agent in the Spring of 1845, his Patent could have been sold for little or nothing. I thought the plan to make it "most valuable to himself" was to retain an interest in the great lines until experience should have demonstrated their value which was wholly unknown but believed by me to be very great. Perhaps I was mistaken; and if you can now inform me of a better plan by which Morse's great invention can be made more "valuable to himself or to the public," I will be largely your debtor.

Are you right when you say, "No one ever heard before of an inventor refusing to sell his patent and requiring as a consideration for its use, not only half the profits to accrue from it during the existence of the Patent, but half the property on which it was to be applied?" I think the cases are numerous in which Patentees without money have gone into partnership with capitalists, the one putting in the patent right and the other money, and owning in common the machines built and the articles manufactured. Of this right to form such partnerships, there can be no doubt. Whether they will do so or sell their patents for a sum of money, is a matter for their own consideration. On one point I concur with you: It is in the suggestion that the police of the Railroad Companies may be advantageously employed in looking after the Telegraph lines, and I do not doubt that the mutual interests of the parties concerned will in due time lead to that result. But in my opinion, no greater evil could befall the Telegraph than that it should be placed, especially on the great lines of correspondence, under the control of the Railroad Companies. Such a system would produce four Telegraph Companies between New York and Washington instead of one; three on the great Southern line through Virginia, and some dozen or twenty between Washington and New Orleans instead of one. When you reflect, that each Railroad Company is local in its position and views; that each is always striving to make the most money it can, without regard to the interests of the rest; and that it is found impracticable for them to unite upon a through ticket for travel, you will be at no loss to decide whether the control of the Railroad Companies, each along its own line, or of independent companies with more comprehensive objects and views, will render the Telegraph "most valuable to its owners or to the public."

There are men in the country, some of them connected with railroads, who looked quietly on while the Telegraph was struggling into existence, without giving it a dollar of money or a word of encouragement; but, now that the principal difficulties have been overcome by the means, labor, and perseverance of others, they are very willing to "reap where others have sown." But they are not content to come into the enterprise on the same terms as those who have gone before them. They claim higher privileges and better terms, as if they merited special favors and dispensations at the hands of Professor Morse and his associates; and if these are refused, they find fault with every thing; talk and act as if some wrong had been done them, and exhibit a peculiar antipathy to "Mr. Amos Kendall."

We had recently a notable instance of this sort in Virginia. The Richmond, Fredericksburg, and Potomac Railroad Company desired to build Morse's Telegraph, but were unwilling to do it on Morse's terms—terms which could be and have been obtained from other parties. An attempt was then made to obtain an Act of the Virginia Legislature granting to the Railroad Companies the exclusive right to construct a Telegraph on the great Southern mail route, and compelling Professor Morse and the other owners of his patent to sell to those companies and nobody else, or, in case of refusal, depriving them of the power to use it on that route altogether! That I may not be suspected of misrepresentation, I must give you some quotations from the bill actually drawn by the Agents of the Railroad Company, and actually passed through one branch of the General Assembly.

The first and second sections gave to the three Railroad Companies, (one of them extending about 23 miles) power to establish a Telegraph and to "make such charges for the use of said Telegraph lines, or for the transmission of intelligence or messages of any description by the same, as may seem to them most advisable." The third section among other things provided that "the said Railroad Companies shall be bound to pay for the use of Morse's Patent such sum as may be, in the opinion of the Board of Public Works, a fair and reasonable compensation for the use of said patent on their respective roads."

The sixth section was in the following words: viz.

"Be it further enacted, That any other person or persons than the said companies, or those who may act by their authority, who may construct, or attempt to construct or maintain a line of Telegraph in the state, east of the Blue Ridge, similar to those herein authorized, without the authority of the General Assembly, along any of the public roads of this state, shall be deemed guilty of a misdemeanor, and be punished as for a misdemeanor at common law."

As the State of Virginia owns two-fifths of the stock in the Railroad Companies, it was reasonable to conclude that the General Assembly would never allow a competing line to be established; and if the bill had become a law, Professor Morse would have had no alternative but to part with his patent right on that line, altogether upon the valuation of an interested party, or relinquish all attempts to make it valuable to himself. And from the mouth of him who was working the power of the General Assembly to force Professor Morse to part with his property that it might be made a legal monopoly in the hands of the Railroad Companies which he controls, I heard, before a Committee of the Senate, the identical arguments against monopoly as well as other suggestions which I find in your article.

I enclose for your perusal an epitome of the arguments which satisfied the General Assembly of Virginia that they ought not to make the Telegraph a monopoly in the hands of the Railroad Companies, and also a printed bill, containing all the material provisions of the Act which they finally passed. Knowing that you can have no motive to lead your readers astray, and must desire, as well to give them correct information as to guard them against error. I shall be happy at all convenient times to answer any inquiries from you relative to the present Telegraph system and the manner in which it is conducted.

With high consideration,

Your Obedt. Servant,

AMOS KENDALL.



## MASSACHUSETTS ANNUAL RAILROAD REPORTS.

## Return of the Western Railroad Company, under the Act of April 16, 1846.

Capital stock .....	\$3,000,000 00
Increase of capital since last report .....	400,000 00
Capital paid in, per last report .....	3,000,000 00
Capital paid in since last report .....	400,000 00
Total amount of capital stock paid in .....	3,400,000 00
Funded debt, per last report .....	4,999,555 56
Funded debt paid since last report .....	
Funded debt, increase of, since last report .....	
Total present amount of funded debt .....	4,999,555 56
Floating debt, per last report .....	
Floating debt paid since last report .....	
Floating debt, increase of, since last report .....	
Total present amount of floating debt .....	
Total present amount of funded and floating debt ..	4,999,555 56
Average rate of interest per annum on do. ....	5 1-5 per cent.
COST OF ROAD AND EQUIPMENT.	
For graduation and masonry, per last report .....	3,146,496 36
For graduation and masonry, paid during the year ..	7,545 50
Total amount expended for graduation and masonry ..	3,154,039 86
For bridges, per last report .....	163,736 23
For bridges, paid during the past year .....	
Total amount expended for bridges .....	163,736 23
For superstructure, including iron, per last report ..	1,031,686 08
For superstructure, including iron, paid during the ..	
the past year .....	22,347 38
Total amount expended for superstructure, includ- ..	
ing iron .....	1,054,033 46
For stations, buildings and fixtures, as per last re- ..	
port .....	232,178 14
For stations, buildings and fixtures, paid during the ..	
past year .....	18,153 87
Total amount expended for stations, buildings and ..	
fixtures .....	250,332 01
For land, land-damages and fences, per last report ..	234,454 97
For land, land-damages and fences, paid during the ..	
past year .....	42,551 19
Total amount expended for land, land-damages and ..	
fences .....	277,006 16
For locomotives, per last report .....	347,470 72
For locomotives, paid during the past year .....	71,507 42
Total amount expended for locomotives .....	418,978 14
For passenger and baggage cars, per last report .....	50,418 02
For passenger and baggage cars, paid during the ..	
past year .....	4,648 47
Total amount expended for passenger and baggage ..	
cars .....	55,066 49
For merchandize cars, per last report .....	248,018 41
For merchandize cars, paid during the past year .....	122,529 60
Total amount expended for merchandize cars .....	370,548 01
For engineering and other expenses, per last report ..	665,850 61
For engineering and other expenses, paid during the ..	
past year .....	
Total amount expended for engineering and other ..	
expenses .....	665,850 61
Total cost of road and equipment .....	6,409,590 97
[Cost of Albany and West Stockbridge railroad— ..	
built and leased by Western railroad] .....	1,776,197 45

## CHARACTERISTICS OF ROAD.

Length of road .....	117,801 miles.
Length of single track .....	111,350 miles.
Length of double track .....	6,454 miles.
Length of branches owned by the company, stating ..	
whether they have a single or double track .....	
Weight of rail per yard in main road .....	56 1/2 lbs.
Weight of rail per yard in branch roads .....	
Maximum grade, with its length in main road .....	83 ft. per mile, 1-5 miles.
Maximum grade, with its length in branch roads ..	
Total rise and fall in main road .....	2087 ft.
Total rise and fall in branch roads .....	
Shortest radius of curvature, with length of curve in ..	
main road .....	682 ft.; 490 ft. in length.
Shortest radius of curvature, with length of curve in ..	
branch roads .....	
Total degrees of curvature in main road .....	6370 ft.
Total degrees of curvature in branch roads .....	
Total length of straight line in main road .....	62,935 miles.
Total length of straight lines in branches .....	
Aggregate length of truss bridges .....	6092 1/2 feet.
Whole length of road unfinished on both sides .....	

## DOINGS DURING THE YEAR.

Miles run by passenger trains .....	215,369
Miles run by freight trains .....	313,259
Miles run by other trains .....	45,328
Total miles run .....	573,956
Number of passengers carried in the cars .....	265,664
Number of passengers carried one mile .....	14,273,181
Number of tons of merchandize carried in the cars ..	166,394

Number of tons of merchandize carried one mile .....	15,748,223
Number of passengers carried one mile, to and from ..	
other roads .....	7,042,846
Number of tons carried one mile, to and from other ..	
roads .....	11,275,654
Average rate of speed adopted for passenger trains, ..	
including stops .....	25 miles per hour, Bos- ton and Springfield. 20 miles per hour, Al- bany and Springfield.

Average rate of speed adopted for freight trains, in-  
cluding stops .....

Estimated weight in tons of passenger trains, includ-  
ing engine and tender, but not including passen-  
gers, hauled one mile .....

Estimated weight of merchandize trains, including  
engine and tender, but not including freight, haul-  
ed one mile .....

## EXPENDITURES FOR WORKING THE ROAD.

[For repairs of Albany and West Stockbridge road] ..	\$11,601 46
For repairs of road, maintenance of way, exclusive ..	
of wooden truss bridges and renewals of iron .....	32,495 54
For repairs of truss bridges .....	11,674 13
For renewals of iron, including laying down .....	24,622 12
For wages of switch-men, gate-keepers and flag- ..	
men .....	
For removing ice and snow .....	2,973 94
For repairs of fences, gates, houses for flag-men, ..	
gate-keepers, switch-men, tool-houses .....	
Total for maintenance of way .....	83,367 19

## MOTIVE POWERS.

For repairs of locomotives .....	41,909 25
For new locomotives to cover depreciation .....	9,700 00
For repairs of passenger cars .....	3,391 31
For new passenger cars to cover depreciation .....	4,750 00
For repairs of merchandize cars .....	21,899 75
For new merchandize cars to cover depreciation .....	10,500 00
For repairs of gravel and other cars .....	
Total for maintenance of motive power .....	89,453 31

## MISCELLANEOUS.

For fuel and oil .....	95,006 01
For salaries, wages and incidental expenses, charge- ..	
able to passenger department .....	22,508 18
For salaries, wages and incidental expenses, charge- ..	
able to freight department .....	63,458 63
For gratuities and damages .....	7,514 91
For taxes and insurance .....	1,260 49
For ferries .....	2,785 17
For repairs of station building, aqueducts, fixtures, ..	
furniture .....	16,195 09
For interest .....	244,731 57
For amount paid other companies in tolls for pas- ..	
sengers and freight carried on their roads, specify- ..	
ing each company .....	
For amount paid other companies as rent for use of ..	
their roads, specifying each company .....	
For salaries of president, treasurer, superintendent, ..	
law expenses, office expenses of the above offices, ..	
and all other expenses not included in any of the ..	
foregoing items .....	31,130 89

## INCOME DURING THE YEAR [11 months.]

For Passengers:	389,861 42
1. On the main road exclusively, including branch ..	
owned by company .....	217,064 22
2. To and from other roads, specifying what:	172,797 20
For Freight:	459,365 18
1. On main road and branches owned by company ..	
2. To and from other connecting roads:	302,406 50
U. S. mails, Rents .....	29,191 29
Total income .....	878,417 89
Net earnings after deducting expenses .....	221,005 52

## DIVIDENDS.

Surplus not divided .....	204,000 00
Surplus last year .....	17,006 52
Total surplus .....	87,005 47
ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:	
Road and bridges .....	104,011 99
Buildings .....	
Engines and cars .....	

Addison Gilmore, Edmund Dwight, John Howard, Josiah Stickney, Stephen Fairbanks, James Russell, Robert Campbell, Jona. Chapman, Abram. H. Howland—Directors.

## REPORT OF COMMISSIONERS

## On the Sinking Fund of the Western Railroad.

The Commissioners of the Sinking Fund of the Western Railroad, in compliance with the direction of the Statute, submit the following report of their proceedings during the past year, of the amount and condition of the said fund, and of the income of the same:

The amount of this fund on the 31st day of December, 1845, as per commissioners' report, \$290,610 61  
 And there has been received from the Western Railroad Corporation, Dec. 31, 1846, 1 per cent. on loan of \$1,000,000, 40,000 00  
 Received for dividends and interest, including \$1,234 25 gain on sale of 75 shares Boston and Providence Railroad stock, 18,631 81

\$349,242 42

The investments are as follows:

Notes and mortgages, - \$203,700 09  
 Notes and collateral, - 900 00

\$204,600 00

\$39,000 U. States 5 per cent. stock, cost \$29,860 00

\$7000 U. States 6 per cent. stock, cost 7,000 00

100 shares Providence Railroad stock, 9,500 00

123 shares Boston and Worcester Railroad stock, 14,096 96

44 shares Boston and Lowell Railroad stock, 26,298 75

200 shares Old Colony Railroad stock, 30,864 50

107,650 21

Cash on hand, 37,022 21

\$349,242 42

If there be added to this \$97 00 interest due and unpaid, also interest accrued but not due, it will amount, on the 1st day of January, 1847, to \$354,618 12, which would be the whole amount of this fund on that day.

In submitting this report, the commissioners would ask leave to call the attention of the Legislature to the following facts:

The debt which this fund is intended to meet falls due between April 1, 1868, and April 1, 1871; the amount in the fund, at the average of those dates, at compound interest, will exceed \$3,000,000, of which one-third, or over \$1,000,000, will be in mortgages.

The existence of so large a fund may render it difficult to obtain suitable investments, and it would be almost impossible to convert, at one time, such an amount of mortgages into money.

The commissioners would, therefore, suggest the expediency of allowing a greater latitude in the kinds of investments, and, particularly, of authorizing the commissioners to purchase and return to the Commonwealth any of the bonds issued by the State, in aid of the Western Railroad, that they may be cancelled, and the liabilities of the Commonwealth thus far diminished.

JOS. BARRETT, }  
 JOSIAH QUINCY, JR., } Commissioners.

#### The Discoveries of 1846.

We apprehend, and there can be no doubt that the year 1846 will be memorable to the end of time, for the remarkable extensions, or new applications, of human knowledge, which will come before future historians as rendering illustrious its narrow limits. Most evident is it that we are now living in the days predicted by the Hebrew prophet; when "many shall run to and fro: and knowledge shall be increased."

1. Foremost among these may be placed the use of ether, inhaled for the facilitating operations. Like all other appliances of this kind, it meets with failures and even with evil results in a few cases. But for one fatal result and five failures we have five hundred instances of vast benefit, in many of which, beyond all doubt, lives have been saved. Without describing it as infallible, or in all cases safe, or to be relied on there can be no

doubt that this discovery has conferred vast benefits on mankind.

2. The substitution of a new explosive material,—the gun-cotton,—in place of gunpowder, is another remarkable event. The extent of its utility is not yet ascertained. Whether it will be largely adopted in warfare is still a point on which no decided opinion has been formed. But of its great utility in all blasting and mining operations, not the slightest doubt can exist. It is both cheaper and more powerful than gunpowder, and the absence of smoke gives it a decisive advantage. There can remain no question, that in all works of this description, the new agent will rapidly supersede the old one.

3. The third discovery of 1846 is perhaps even of greater importance than either of the former. We allude to the lately patented process for smelting copper by means of electricity. The effect of this change will be quite prodigious. It produces, in less than two days what the old process required three weeks to effect. And the saving of fuel is so vast, that in Swansea alone the smelters estimate their annual saving in coals at no less than five hundred thousand pounds. Hence it is clear that the price of copper must be so enormously reduced as to bring it into use for a variety of purposes, from which its cost at present excludes it.

The facility and cheapness of the process, too, will enable the ore to be largely smelted on the spot. The Cornish mine proprietors are anxiously expecting the moment when they can bring the ore which lay in the mine yesterday, into a state to be sent to market to-morrow; and this at the very mouth of the mine. In Australia also, the operation of this discovery will be of the utmost importance. Ten thousand tons of copper ore were sent from Australia to England last year to be smelted at Swansea; and the result was only 1600 tons of copper. But Australia in future will smelt its own copper, by a 36-hours process; saving all this useless freight of the 8400 tons of refuse; and saving also the cost of the old expensive process. In a very few years Australia will send to market more copper than is now produced by all the rest of the world. But if our future penny-pieces are to bear any proportion to the reduced cost and value of the metal, they must be made of the size of dinner plates.

#### Vermont and Massachusetts Railroad.

After an unusually protracted session, our Legislature has closed, and prominent among its acts involving the question of public policy and justice to citizens, stands the refusal to the Vermont and Massachusetts Railroad—not of a state subscription to its stock—not an issue of its Scrip—but the simple privilege to borrow from another corporation the aid which that had received from the state to its great benefit and prosperity, but now no longer needing it, would be glad to endorse over to another for a like benefit. At the hands of a parent Commonwealth, having an interest in the prosperity of her whole family, this has been refused—and this too, after the bill in its transit by the usual course of legislation, had almost passed without opposition.

By what influence, and for what reason and purpose this change in the action of the House was produced, is a subject of general inquiry.

The Vermont and Massachusetts Railroad is an extension of the Fitchburg, across the whole breadth of Worcester North, into Franklin county, to Brattleboro', Vt., with a view to intersect the Rutland at Bellows Falls, and ultimately destined to be the trunk of an extension from some point to the Hudson River, and for its importance prospectively, second to no road in the state. Its whole line, from Fitchburg to the Connecticut, abounds in water-power to an extent unequalled by any other line of the same distance, passing through a community unsurpassed for their enterprise, thus uniting the two greatest elements for business, water-power and enterprise. Such is the Vermont and Massachusetts Railroad in its claims and importance to the Public, in which Worcester North has a great interest, and while struggling as many other roads (now the most prosperous under this aid) have done before, why has it received this blow to its prospects of immediate completion and success? For this the people of Worcester North feel aggrieved: And feel it sorely. Has it thus fallen upon us because in past years, when this policy which has triumphantly benefitted the state, was made a political question, and as the Whig anchor of the state and county? Worcester North unitedly came forward in support of it, and particularly the Western Road in her days of application and peril? She then held and gave the casting vote deciding the date of that great public work, fixing upon the Commonwealth the "mortgage," then made the party "whistle" of alarm, now so safe and productive—or has the rod been thus applied to us because, with feelings of pride for her prosperity in becoming a great centre, we have always attached ourselves to Worcester, and with the most loyal feelings have resisted from without every application to separate from her, and thus when we ask in our turn, what by our influence the state has liberally conferred on others, we are turned upon and refused? The spirit of inquiry from whose hands we have been thus treated, has actively gone forth—Why the sudden change in the action of the House, and who among us made the Somerset, by a direct vote, or dodged the question, and for the want of whose voice and efforts it was finally lost.

When the bill was first acted upon in the House, it stood upon its own merits, and before private feelings, sectional prejudices, and corporate interests were awakened, passed with hardly an opposition—this was an honest action of the House, worthy the former character of our Legislature for the broad, liberal and comprehensive views of public policy, under which she exhibits an extent of railroad all paying good interest, resting on individual enterprise, beyond any other, if not every other, state in the union of like character for its soundness and value.

Who among us indulged in these prejudices and feelings? They will commend no



one to the future suffrage of the North, whose liberal example may justly reproach them with injustice.

The "moonshine" plea of *precedent* is the only one made, and that came with an ill grace from those who had been eminently the beneficiaries of the policy—an old harp always used to alarm, but never practised in legislation. If *precedent* could be placed in claim for legislative action, why should not every band or railroad charter applied for, be at once granted?—there are certainly precedents enough!—practically, every case stands on its own merits, and the question of public good is the true test of decision. Shall the state refuse to do justice to a party for fear that under the plea of *precedent*, they may be required to do injustice, or a wrong act?

Though the Vermont and Massachusetts road may be retarded in its progress, and the public deprived of its benefits, and the corporation lose an income from the use of its whole length, yet, with one million of money paid in, and the road constructed as far as this outlay will carry it, with the business it will be able to exhibit, it will possess an irresistible inherent power to carry itself through in spite of every obstacle.

#### WORCESTER NORTH.

We copy the above article from the Worcester *Ægis*. We know from personal observation that the Vermont and Massachusetts Railroad is being constructed in a more thorough and substantial manner than any road yet built in New England, and its vast importance to all Northern Massachusetts, cannot be questioned for a moment. We know, too, some of those "from whose hands we have been thus treated." Some who have "made somersets." And at least one who, while at first he nobly and eloquently sustained the interests of this long-neglected portion of our Commonwealth, (his birth-place and early home,) was found *capable*, at the final passage of the bill, of dodging the question.—*Fitchburg Sentinel*.

#### Accidents on Railways.

The return moved for by Mr. Edward Buller, of the number and nature of accidents and injuries to life and limb which have occurred during the six months ending on the 31st of December, 1846, now printed, exhibits the following results:—

Forty lines makes a return of an aggregate of 144 accidents, involving loss of life to 81, and injuries to 154.

The line on which the larger number of accidents have occurred, are the—

	Killed.	Wounded.
Eastern Counties,	4	34
Manchester and Leeds,	10	14
Midland Counties	8	3
North-Western (London and Liverpool,)	10	14
London and Brighton, and South-Western,	4	29
Edinburgh and Glasgow,	2	4
Great Western,	3	0
North Union,	5	11
Stockton and Darlington,	4	4
Bristol and Birmingham,	2	4
Manchester and Lincolnshire,	3	2

As regards the class of accidents in which passengers are most interested, viz., collisions—the return shows 16 such cases, causing injuries to 70 persons and death to three. The return, which specifies the nature of each particular accident, likewise shows that the majority of the entire cases arise from the carelessness of the sufferers themselves; and of this class 40, mostly fatal, are from the single cause of crossing or walking on the lines in front of an advancing engine.

#### Connecticut and Passumpsic Rivers Road.

The first forty miles of this Railroad, from its lower terminus at the mouth of White River to the village of Wells River, Vt., is now under contract. The contracts for grading and masonry have been taken by sections, at prices within the engineer's estimates, by several companies, most of whom are favorably known as experienced and efficient contractors. They are Messrs. O. Keefe & Boyle, Ten Brook & Brintnal, E. Gilmore & Co., Shaler & Sammons, G. H. Wood & Co., Davis & Fisher, Shaler & Gray. We understand that the work is to be prosecuted so as to be ready for the rails June, 1848, with a view to the completion of the road to Wells River, in the fall of the same year.

From an examination of a map and profile of this road we are agreeably surprised to notice the directness of the line, and the remarkably low grades. On the forty miles contracted for, the maximum grade is about 26 4-10 feet the mile. Although this is essentially a continuation of the Northern Railroad, and forms the avenue from the upper valley of the Connecticut and northern Vermont to Boston, yet connecting as it does at the mouth of White River, with the Vermont Central Railroad and the lines of railroad down Connecticut river, it will receive a great amount of business and travel from the valley of the river below, and from the western part of Vermont.

The local business along the line of this road can hardly be overrated. Those acquainted with the country north of the mouth of White River, through the valley of the Connecticut and Passumpsic rivers, to Canada line, can state, without contradiction, that as regards the productiveness of the soil, the abundance of water-power, and the thrift and the enterprise of the population, it is not exceeded by any part of New England.

A line of villages, averaging some three or four miles apart, lie upon the immediate banks of the river, and some of them are quite important. Among others, are those of Dartmouth College, (Hanover) Norwich, Vt., nearly opposite; Lyme, Orford, Haverhill; and Bath, in New Hampshire, and Bradford, Newbury and Wells River, in Vermont.

The business of the towns lying back from the river, on either side, for a considerable distance, must fall naturally into this valley, while at Wells River it opens to a more widely extended district, the business of which cannot fail to make this road immediately productive, as soon as it is opened to that point. Its extension thence to St. Johns-

bury, in the centre of Caledonia county, may be looked upon as certain at an early day, and its ultimate completion to the Canada line, where it will connect with the Canadian road to Montreal, is looked for at no distant day. We commend the plain, unostentatious, yet well-arranged and business-like proceedings of the Directors in bringing this road into its present position, and have no doubt that it will be a successful and safe operation for the stockholders, and an important acquisition to the business of Boston. Its friends in this vicinity may promise to themselves, within two years, a trip over this road to the Mineral Springs and the great Ox-Bow, in Newbury, Vt., and an excursion thence to the White Hills, which are about twenty miles from the village of Wells River.—*Boston Courier*.

#### ITEMS.

**Railroad Convention.**—A Railroad Convention was held at Indianapolis on the 12th instant, in relation to the junction, by railroad, of St. Louis and Cincinnati. The Cincinnati Chronicle says—

We learn that at the Convention it was ascertained that the Indiana line is all chartered and the companies formed from Terre Haute to Richmond. Books will be opened on this line, and great interest is felt in the matter.

In Illinois, it is true, that the charter granting the right of way, failed, at the last Legislature, by one vote only. The Delegates from Illinois assure the friends of the road, that there is no longer any difficulty on that score. The particular opposition which occasioned it is withdrawn, and the charter will easily pass the next Legislature. Parts of the road in Illinois are already done, and with the capital of St. Louis, the aid of the counties, and other means which may be obtained, we doubt not its completion. What Cincinnati has to do, is, to have the road made through Hamilton to Richmond. It is only fifty miles—will cost half a million of dollars, and can be made with perfect ease by Cincinnati, the county of Butler, and the county of Wayne (Indiana.) The Convention resolved, that Books of Subscription should be opened for the Line, through Richmond and Hamilton, to Cincinnati. They also resolved, that Cincinnati should be looked to as the point of connection in Ohio, and that every effort should be used to arouse feeling and secure capital—to make the road to Cincinnati, and thence to the Atlantic.

**Walpole Railroad.**—The Directors of the Walpole Railroad Co. have concluded a contract with Messrs. E. Gilmore & Co., for the grading, masonry, etc., of the entire line of their road from Denham to Walpole. Arrangements are already made for commencing the work on the three upper sections.

**The Albany and Boston Railroad** is doing an unprecedented business in freighting just now. The great demand for flour for the Boston market, caused large purchases in Albany, and since Saturday morning week, from 20,000 to 25,000 barrels have been sent over the Western road to Boston. And this is the work of but six days.

**Covington and Lexington Railroad.**—A friend who feels a deep interest in this important project, informs us that the apathy manifested towards it by the citizens of Covington, grows out of "dissatisfaction with the charter. He says that it was determined by common consent not to subscribe stock until some of the obnoxious features of the law should be removed, or a new charter granted. He thinks, and he speaks from an intimate knowledge of the feelings and ability of the citizens of Covington,—that with a liberal and satisfactory charter, \$150,000 of the \$250,000 required to effect an organization of the company, would be taken in Covington and vicinity at once. The cost of the entire road is estimated at one million of dollars. He says our friends over the river fully understand their interests, are feelingly awake to them, and will be ready to move actively and effectively in this matter the moment that suitable legislative action shall have been had.

The only regret, then, is, that operations are delayed eight or ten months. Much better this, however, than that a commencement should be made under auspices any other than the most favorable.—*Cin. Gaz.*

**Illinois and Michigan Canal.**—The Trustees, at their recent meeting on the line of the Canal, procured the relinquishment by the contractors of such portions of the heavy work as could not under the present arrangement, be finished by November next, and will prosecute the construction of those portions by laborers in their own immediate employ. Six hundred laborers are wanted, to whom one dollar per day will be paid, and about one hundred stone masons at \$2 50 per day.

**The Electro-Magnetic Telegraph** now in course of construction between Fredericksburg and New Orleans will pass along the line of the South Carolina Railroad. The Charleston Mercury says—

It is decided that the section of the line from Columbia to Charleston, thence to Augusta, shall be first completed and put into operation. Wire for upwards of one hundred miles of the route is already prepared, and may be expected soon to arrive.

**Portland and Kennebec Railroad.**—We learn from the Kennebec papers that contracts for grading the Kennebec and Portland road from Portland to Bowdoinham have been given to three companies of individuals, to wit: The road from Bath to Brunswick, with the depot at Bath, to Colby & Co., of Brunswick; the road from North Yarmouth to Brunswick, to O'Neal & Co., of Massachusetts; and the road from Brunswick to Bowdoinham, including the depot at Brunswick, to Edgeton & Marsh of Maryland. These lettings have been made upon terms more favorable than had been anticipated. The number of competitors for the work was large.

The surveys of the remainder of the road to Augusta are nearly completed, and it will soon be advertised for contract. The surveyors are now at work between Gardiner and Hallowell.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

## MISSING NUMBERS

OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

**NOTICE TO CONTRACTORS.**—ANDROS-COGGIN AND KENNEBEC RAILROAD. Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Androscoggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June. Satisfactory surities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.  
Railroad Office, Lewiston, May 8, 1847. 4c21

**CHAMPLAIN & CONNECTICUT RIVER RAILROAD.**—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the Grading, Masonry and Bridging of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,  
T. FOLLETT, President.

Office of the C. & C. R. R. Co.,  
Burlington, Vt., April 29, 1847. 3c90



ANDREW MENEELY.  
West Troy, May 12, 1847. 1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

19c1

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.

1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by  
JOHN W. LAWRENCE,  
143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 3c1y

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 4 inch Flat Punched Rails, 90 ft. long. 25 " 2½ x 4 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 4tf

## LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa. 4tf

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10c39.

## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46u

## TO CONTRACTORS.—KENNEBEC AND

PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the Grading and Masonry of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cuthance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Augusta, 31 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.  
ENGINEERS OFFICE, K. & P. R. R.  
Brunswick, Me., April 6, 1847. 1m16

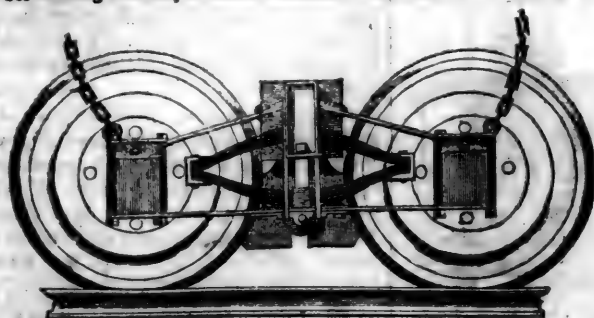
## THE SUBSCRIBER IS PREPARED TO

execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
New York, 1y10



# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	
11	4	13 5	10	21 -		50	15-16	90
13	3	8 3	8	16 -		27	11-16	13
14	3	6 11	7	12 8		17	9-16	10
15	2	5 2	6	9 4		13	1-2	7
16	2	4 3	6	8 8		10	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [1lf] 68 Broad St., New York.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

Philadelphia, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern.—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern.—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 19, 1845. } 1y19 Sup't Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

Jan 45 Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE SUBSCRIBER'S

New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

FIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,

45 North Water St., Philadelphia,

or by their Agent, ROBT. NICHOLS,

79 Water St., New York.

# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs Bots and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10f

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,324 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 3,350 lbs. at 4 1/2 cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail ..... \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33f

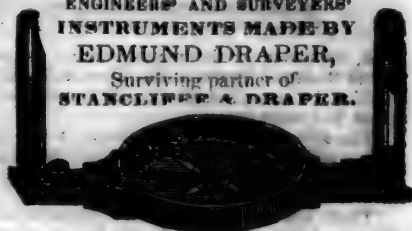
## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—lean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

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**THOMAS PROSSER,**

Patentee.

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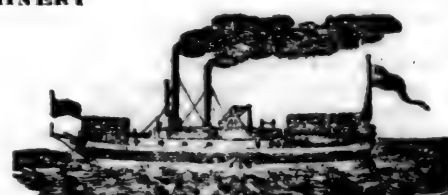


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III, No. 25)

SATURDAY, JUNE 19, 1847.

[WHOLE No. 574, VOL. XX.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, June 19, 1847.

### Chilled Cast Iron Wheels for Railroads.

We give in this number of the Journal a communication from Mr. Ross Winans of Baltimore, with a lithographic illustration of his plans of wheels for locomotives and cars. Mr. Winans has had great experience in such matters, and in this communication he gives the result of that experience for the consideration of railroad companies, and we therefore ask for it that attention which its importance, to every railroad company in the country, will justify.

We shall, in our next, give another lithograph, illustrating other wheels of different sizes and weights.

### Railroad from Tide Water to the Western Rivers.

This subject is one of vast and increasing interest, and, in our estimation, its importance is not duly appreciated by the masses who are most deeply interested in the early completion of the several important lines between tide water on the east, and the great rivers on the west. With these views we are ever desirous to disseminate information calculated to place the subject in its proper light—and therefore have commenced the publication, in this number, of an exceedingly well-written pamphlet—designed especially for *one*—yet equally applicable to all—of the great lines—as it contains a mass of statistical facts, useful alike to all who wish to understand the whole subject. We give only a part in this, and shall complete it in our next number.

### Massachusetts Railroads in 1846.

Having completed the publication of the Massachusetts Railroad reports for 1846, made in accordance with the requirements of the Legislature, we now give a tabular statement of them prepared by a careful and competent hand, for that excellent work, HUNT'S MERCHANTS' MAGAZINE. These reports may have appeared, to some of our readers, as the same thing, so often repeated—but they will find the figures changed in each report. The object of giving them entire is to put them on record for future reference and comparison.

Having completed the Massachusetts reports, we shall now publish the *New York* reports—if some friend will please send us a copy.

### New York Railroad Reports for 1846.

Will some of our readers please send us a copy of the *New York Railroad Reports* for 1846?

We insert in the present number, at the request of Mr. Amos Kendall, a synopsis of his arguments against the bill brought forward in the Virginia Legislature last winter, which proposed giving to the railroad interest in that State, the exclusive right to construct a Telegraph on the great southern mail route. We lay Mr. Kendall's synopsis before our readers, that they may have his views before them, tho' we do not exactly perceive its relevancy in the discussion of the merits of "the Telegraph system," presented to the consideration of our readers in the No. for 10th April. It is not surprising perhaps, that the railroad companies in Virginia should have wished to be the owners of the line of Telegraph through that State, as it might be a matter of convenience as well as profit, and we do not perceive that they aimed at anything more, in that respect, in Virginia, than the owners of Morse's Telegraph have endeavored to effect on a larger scale—in wishing to obtain for that plan of Telegraph, a monopoly in the conveyance of intelligence between New York and New Orleans.

We are ourselves opposed, as is well known, equally to "grasping monopolies," on the part of railroad companies, as in other matters, and it is precisely because we are opposed to such monopolies—while we believe the police of railroad companies to be invaluable for a Telegraph line—that we suggested, for the consideration of railroad companies, "the Telegraph system," recommended in our number of the 10th of April. We cannot agree with Mr. Kendall, that "such a system would pro-

duce four telegraph companies between New York and Washington, instead of one, three on the great southern line through Virginia, and some dozen or twenty between Washington and New Orleans, instead of one." On the contrary, it seems to us, that the system we propose, instead of leading to the disruption of the line between New York and New Orleans, would probably bring about several entire lines between these points.

This result would ensue, from the facility with which, on our plan, such lines would be gotten up. The plan, as developed by us in the Journal of the 10th of April, is, that railroad companies should put up, along their respective works, single lines of well secured posts, placing on them, as wanted, as many sets of perfectly isolated wires, as there may be a demand for; the posts and wires to be kept in order by the railroad companies, for a proportion of profits, or at a stipulated rent for each line of wire, and the wires to be worked by independent telegraph companies, with the most "comprehensive objects and views." Under such a system there could be no breach of continuity, as all that the railroad companies would have to do would be to keep the lines of wires in perfect order, and to repair promptly any accident which might occur, while the agents of the telegraph companies, at each end of the line, and at intermediate points, would communicate promptly, by uninterrupted wires, (and of course without the necessity of repetition) all messages, or letters, to be communicated by them. Of course gaps between railroad lines would have to be filled up by posts and wires, to be put up by the telegraph companies, as at present, along the common roads, but it would be a great object, and add much to the value of telegraph lines, to obtain, as on the plan proposed by us, the benefits of the police of railroads, where such works exist. We cannot doubt that a line of telegraph between two important points, as Philadelphia and New York, and much more so between two important and remote points—as New York and New Orleans—having the benefit of this police, would inevitably take away the business of a line not having the same advantages, even though the particular plan of telegraph of the latter might be greatly superior.

The more we reflect on the subject, the more we are satisfied that the above is the *true system*, that the railroad companies will find it a source of handsome profit to them, while the public will be the

gainers by it in a more prompt and certain conveyance of intelligence, at *lower rates* of charge.

We are gratified to learn from Mr. Kendall's letter, published in our last, that the owners of Morse's patent are willing to sell *absolutely* the patent right for lines not already bargained away. We have no doubt if they will do this *on reasonable terms*, that it will lead to Prof. Morse's patent being adopted generally in preference to any other plan of telegraph yet devised. But a charge of *one-half the profits*, or property, which it appears from Mr. Kendall's letter has hitherto been the charge on "the great lines," *merely for the patent right*, must inevitably deter many men from embarking in lines taxed with so heavy a bonus, and lead, ere long, to the adoption of other descriptions of telegraph, and probably to the introduction of other plans, combining equal advantages, with that of Mr. Morse.

In this matter, as in that of railroads, we go for giving the best possible returns to those who devise and construct works of so much utility; but in this, as in *some* railroads, we differ with the managers as to the best mode of ensuring the best returns—and as we usually speak our own views freely in relation to the management of railroads, so we shall in relation to other matters of this kind.

#### Magnetic Telegraph.

*Reasons why the Bill now before the Senate, granting a Monopoly of the Electric Telegraph to the Railroad Company, ought not to pass.*

1. Patent rights are *private property*, secured by the Constitution and laws of the United States, which the owner has a right to use or sell for the public good and his own emolument, in Virginia and every other state in the Union. This bill proposes to *compel* the owners of such property in an Electric Telegraph, to sell it to the railroad companies at a price not fixed by themselves, and in case of refusal, virtually forbids its use in this commonwealth below the Blue Ridge. And its object is, to *destroy* in lower Virginia all patent property in telegraph systems, which may not be owned and controlled by the railroad companies.

2. The railroad companies want to possess and use Morse's Telegraph, but they are unwilling to pay Morse's price for it—a price which he can readily obtain from others. These companies, therefore, come to the General Assembly and invoke the power of the state to prevent Morse selling to others, and compel him to sell to them at a reduced price!

3. Nothing but great public emergencies can justify the seizure of private property at a valuation, contrary to the will of the owner, and then it must be *for the use of the public*; but that process is proposed in this bill, not for the public good, but to *transfer property from one owner to another* who cannot buy it on terms acceptable to himself!

4. Morse's patents are no more a monopoly than a man's horse, house or farm is a monopoly. If his telegraph, or his horse, house or farm is more valuable than his neighbor's, it is no good reason why the General Assembly should be invoked to compel him to sell it to one neighbor at a price less than he can get from another.

5. That Morse's Telegraph is believed to be very valuable, is given as a reason why he should be compelled to part with it for the benefit of the railroad company. See, says the railroad company, how rich this man is to be, from the use of the instrument he has spent all his means and fourteen years of study, toil, and privation, in perfecting; *we must have a share of this wealth*; and if you, old and honorable Virginia, will but compel him to take us in as partners, on our own terms, we will give you

*two-fifths* of these enormous gains! What is this in principle, but asking the power of law to compel the rich man to divide his wealth with his neighbor who promises the state a part of the gains for the use of its power? All Professor Morse's wealth is prospective, perhaps visionary. He has not realized from his telegraph \$3000 in cash.

6. The railroad companies say, that Morse's Telegraph is a monopoly, admitting at the same time that there are other systems which can and may be used. The plan of this bill is to make it a *real monopoly* by forcing it into connection with the railroad companies, and forbidding any other to be constructed below the Blue Ridge.

7. The grant of monopolies is only excusable when great public improvements, really valuable to the people, can be obtained on no other terms, but here it is proposed to *stop* a valuable improvement that it *may be made a monopoly*; and the people are to be deprived of all the benefits of competition, not because it is necessary, but because it is the interest of the railroad companies.

8. The bill proposes to create *three separate* and independent telegraph companies on the mail line through Virginia, each with power to *charge at discretion*. At this rate, there would be eighteen or twenty companies between Washington and New Orleans, which of itself would destroy the public utility of the telegraph.

9. Why should the state go into partnership with the railroad companies, first to *force* an interest in the telegraph, and then to divide the profits, getting, however, but *two-fifths* of the whole? Would it not be fair and more in conformity with those principles which should govern business transactions, to go into partnership with the present lawful owners, and take all the profits thence resulting? *This she may now do if she chooses, taking the structure built at cost, and continuing it through the State, or at least as far as Petersburg.*

10. This bill has no provision requiring the railroad company, in case the monopoly is granted them, to take at any price, the structure now up from Washington to Fredericksburg, and the materials prepared for the line through to Petersburg.

11. If this bill passes, the people of lower Virginia will *certainly* have a telegraph monopoly fixed upon them in Morse's system, or some other. If not, they will have a chance for—nay, may *expect*, competition at no distant day, if the business shall turn out to be as profitable as anticipated. At least, the defeat of the bill leaves a *chance* for competition, while its passage will not.

12. In May next, if permitted, the owners of Morse's Telegraph will give to the Virginia towns on the main mail route, the news from European markets, in a few minutes after its arrival at Boston or New York, and as soon as it reaches Buffalo and Pittsburg, placing the merchants of Virginia on a footing with those now reached by the telegraph in other sections of the Union.

13. The following is extracted from a paper laid on the desks of the Senators by the railroad interest, viz: "It may be objected that the proprietors of Morse's patent will not sell the right to use it to the railroad companies, and that in consequence, the transmission of intelligence will be interrupted by giving the privilege of constructing the Telegraph to the railroad companies. The owners of Morse's patent *will undoubtedly not sell the patent right*, and would probably refuse to connect with the railroad line of Telegraph through Virginia, if allowed to construct a *separate parallel line themselves*, along which they could transmit all the *through intelli-*

*gence*, and derive the whole profit from it. But it can scarcely be supposed that if the patentees are not allowed to construct such a line, they will not be willing to sell the patent right on *fair terms*, or refuse to connect their line North and South of Virginia, with the line through Virginia, when they would be much more injured by such a proceeding, than the Virginia companies. If, however, they should refuse to do so, no doubt is entertained that companies would *speedily be formed South of Virginia and North of Washington, to connect with the railroad line through Virginia on some other plan of Electric Telegraph.*"

Upon this state of the case, it cannot be doubted that the passage of the Monopoly Bill will postpone indefinitely the construction of any Telegraph at all through this State.

Professor Morse and his associates will not be forced to sell, because they can approach New Orleans through the West, where every facility is offered them, with the same ease as through the South; and if they could not, they might not be justified to submit to the principle, that men may be forced by law to dispose of their property at reduced prices, because other men covet its possession.

They would refuse—and what then? "Why," says the Railroad Company, "no doubt is entertained that companies would speedily be formed South of Virginia and North of Washington, to connect with the railroad line through Virginia on some other plan of Electric Telegraph."

And with a Telegraph admitted to be the best ever yet invented, offered to be extended to her capital in sixty days, and already nearly completed for half the distance, the merchants and people of Virginia must wait until Mr. Robinson has found "*some other plan of Electric Telegraph*," and has organized a series of companies, *all the way from New York to New Orleans*, "to connect with the railroad line through Virginia!" This is to refuse the benefits of the best Telegraph now offered, for the chance of getting an *inferior* one some years hence! For what reason? Simply to enable a grasping monopoly to add a war of Telegraphs to its present wars with other railroad and steamboat companies, to the positive detriment of every interest involved, public and private—even its own! And, was there ever any thing more strange, than an application to the General Assembly to sustain such a proceeding by law?

It has been avowed, that the railroad company do not want a Telegraph built at all, lest the people of Virginia should save by its use the time and money now spent in travel, and thus reduce the profits of the railroad stockholders! Is it their design to prevent its construction? Such would be the certain effect of the legislation they solicit.

#### PUBLIC GOOD.

##### Philadelphia and her Means.

We learn with pleasure, says the U. S. Gazette, that the engineers of the Pennsylvania railroad are actively and successfully engaged in the labors of their profession, and that many miles of the road will be under contract in a week or two. The work is of the utmost importance to our city, and every Philadelphian must feel solicitous to have it advanced with all the rapidity of which a work of such magnitude is susceptible. It is a truth, of which some of our citizens have not a full appreciation, that Boston capital is lavishly poured out in Ohio, so that a continuous steam communication will, ere long, be had between Boston and Cincinnati. Meantime, Philadelphia is the natural and favorite mart of the West, and all that is necessary to secure to ourselves a continuation and regular increase of the



business of the city, is to be active, liberal, prompt, and ready to meet the efforts of other places with the means we have. There is an immense capital in Philadelphia—we mean a cash capital; but there is still a greater business capital in the credit which our merchants have for liberality and fair dealing; and these, connected with the proper facilities of trade, must continue to augment our business, and continue the prosperity so evident in the present season's transaction.

#### Railroad Stations.

We find the following remarks, on the propriety of "grouping" railway stations, in the Portsmouth (N. H.) Journal, of 12th inst. They are so much in accordance with our own views, that we are almost led to believe that they were written for the Railroad, instead of the Portsmouth Journal, and were sent by mistake to the wrong printing office. They are at all events now in the proper columns.

Correspondence of the Portsmouth Journal.

"DEAR SIR: I am daily hearing much said in regard to the location in this vicinity of the stations of the Portsmouth and Concord railroad, and would take the liberty to suggest a few reasons in favor of grouping the stations of both our railroads. This is the easiest and most unobjectionable mode of entering the town. A short distance beyond the Stocking Factory the two roads intersect, and by retaining the grade of the present road, no street no highway is interfered with in the least. This is an item of the first importance in respect to the convenience and safety of the public.

"In England, independent crossings are required in all cases, and this is fast coming to be the demand with us; and until this is obtained, safety from fearful casualties and a sense of security will not be secured to the moving public. Besides being the easiest and most unobjectionable, it will afford the greatest facilities to the public. Trains will be arriving and departing on both roads more or less in concert—passengers and freight coming on one, are to leave on the other. Such being the case, to have the stations at a distance from each other, would be subjecting every passenger to the inconvenience and expense (both utterly needless) of crossing over from one road to the other, and imposing a tax of fifty cents a ton, and little less than that on any article of merchandize, however small, that may have to be re-shipped. Now, to impose this inconvenience and tax upon the patrons of the road, would be as impolitic as it would be needless and unjust.

"The above considerations receive much inforcement from experience. There are not a few places in this country, and some most striking ones may be cited from Europe, where vast sums of money are being spent in rectifying mistakes on this point. At Schenectady, in New York, independent stations were erected, but the demands of the public prevailed, and large sums of money were expended to group the stations, and the large sums previously expended thrown away.

"Providence, R. I., is another instance where local interests and influences prevailed, and for years subjected the public to delays, inconveniences and expenses forty fold greater than all the benefits individuals derived. But the demands of the public have been heard, and the stations of the three roads entering that town are to be grouped in a manner that will be as admirable as the former arrangements have been abominable.

"In England, too, the same experience has been gone through with, and the same results, though on a larger scale, come to. In Liverpool, all the passenger trains, except one, are grouped, and the ad-

vantages are so obvious, that immense sums are being expended at other points where several railroads terminate. In Birmingham, a field of some fifteen or twenty acres has been appropriated to the purpose, and five or six roads have abandoned their former localities, and now terminate under one roof.

"In Leeds, the same thing is being done. The station of the Manchester road has been brought farther into town, and the Bradford road has been extended over a mile through the most densely populated parts of Holbeck, to terminate at the same station. In Manchester the Liverpool, Birmingham and Leeds roads all had independent stations. The inconveniences, however, were found to be so great that a junction line a mile and a half in length has been built, upon iron and brick columns and arches some thirty feet high, at an expense of near a million and a half of dollars, to bring the Liverpool and Leeds stations together; and another junction line of about the same length is now being built to bring the Birmingham station into the same place. In this case, we see a sacrifice of between two and three millions of dollars, besides an abandonment of all former arrangements and expenditures made to effect them, all upon the altar of public convenience.

"A plan for the same thing is contemplated in the city of London, and the day is not far distant when the present whisperings of complaint and irritations under inconvenience and useless expenses, will ripen into stern demands for some common centre in our own New England metropolis. We may not be ripe for it now, and may dissent from the opinion of its practicability, but that the convenience of the public would be vastly promoted by having all the stations in Boston grouped together, and the economy of transportation and travelling would be much increased, no one can question.

"Now, with such experience before us, with such facts staring us in the face, who can urge upon the managers of the Portsmouth and Concord road a policy directly the opposite. The grounds in other parts of the town may, in themselves considered, be convenient enough, and perhaps more so than the location of the present station, but the interests of the public, and consequently the interests of the roads, demand that the stations of the two roads should be side by side, and to this result I trust and believe the observations and good judgment of the managers of the new road will bring them."

#### Baltimore and Ohio Railroad.

We learn from the Argus that at a meeting of the Board of Directors of the Baltimore and Ohio Railroad Company, recently held, the President, Mr. McLane, read a paper concerning the present condition and future prospects of the company, and recommended: 1st, that measures be taken for the extension of the road westward along the banks of the Potomac and Savage rivers to the Maryland line—and 2d, that the road be also extended to the south side of the Basin, under the authority given, and contract heretofore made, with the City Council.

The extension of the road thus provided for, will take it to a point from which it can hereafter be carried to Pittsburg, Wheeling, or any more southern point on the Ohio river, being common to all.

We also learn that the following resolution, in relation to the free travel on the road, was adopted:

*Resolved*, That hereafter the privilege of free travel on the road be confined to the president, directors and depot agents, and to other officers of the company when on business of the company, and to the presidents of those roads on which a similar privilege is extended to this company, and to such others to whom the board, or the president under the au-

thority in him vested, may hereinafter grant a free ticket.

#### Portland, Saco and Portsmouth Railroad.

The annual meeting of the stockholders of the Portland, Saco and Portsmouth railroad company, says the Portsmouth Journal, was held at Portland on Monday last. The following gentlemen were chosen directors for the ensuing year:

David A. Neal, of Salem; Stephen A. Chase, of Salem; Benjamin T. Reed, of Boston; Ichabod Goodwin, of Portsmouth; John D. Lang, of North Berwick; Josiah Calef, of Saco; Charles E. Barrett, of Portland.

Mr. Whitney, the projector of the Atlantic and Oregon railroad, delivered an address recently, before the members of the Maine legislature, setting forth the practicability of the enterprise, and the important bearing which its completion would have on the commercial interests of the United States. The legislature have passed resolutions in favor of the work.

#### Railway Traffic in England.

From our official returns, says the Railway Chronicle of 15th May, it appears that the amount of traffic for the last week, on upwards of 2,730 miles of railway, was £161,457, thus accounted for:—£84,234 for the conveyance of passengers only, £39,243 for the carriage of goods, and a remainder of £37,980 for passengers and goods together, not respectively apportioned; being an increase of £22,643 over the corresponding week of last year, when the mileage was about 1,990.

#### Allegheny Portage Railroad.

A correspondent at Johnstown, Cambria county, says, "It is almost unnecessary for me to tell you that we are doing a tremendous business this season on the railroad. The tolls for the month of May exceed those for the month previous five thousand dollars, and the business rapidly increasing."

#### Closing of the Contracts.

We learn by the Hallowell Gazette that at a meeting of the Directors of the Kennebec and Portland Railroad, at Augusta, on Thursday last, the grading of the whole line from North Yarmouth to Bowdoinham, including the branch to Bath, was let out to three companies, and the contracts closed.

The line was divided into three sections. A company from Maryland takes one third, a company from New Hampshire one third, and a company at Brunswick Me., the other third, including the Bath branch.

The terms of these companies are highly favorable to the corporation; being much less per mile than the estimate of the engineers.

The grading, therefore, on the entire line from North Yarmouth to Bowdoinham will be immediately commenced.

#### NASMYTH'S STEAM-HAMMER.

On Tuesday, one of Mr. Nasmyth's recently invented steam-hammers was put into operation at the Shrubbery Iron-Works, belonging to Messrs. Thornycroft & Co., near this town. It is the only one in the neighborhood, and its first operations were directed by the inventor, with his own hands. Several gentlemen, interested in trades to which the invention is applicable, were also present, and watched its performance with great attention. It has been justly said that the steam-engine will alike forge an anchor, or polish a pin, impel a railway train, yet

spin and weave threads rivaling gossamer; in the machine before us, however, these wondrous powers, in other instances separate, are astonishingly heightened by their combination. Vast power and the most delicate touch are united; pieces of iron 7 or 8 in. in thickness, by a single blow were broken; while an egg in a wine glass, placed under the hammer, was so lightly touched that its end was only fractured, as if by the gentle tapping of a spoon. Nuts were broken without injury to the kernels. The hammer itself, we should state, weighs about 2 and a half tons. No description of the machine could be understood unless accompanied by drawings. We content ourselves, therefore, with a short notice of a main principle of its construction. The piston of a steam-engine commonly works upward from the cylinder; in the machine in question, the cylinder is placed at the top of two very strong iron cheeks, and the piston works downwards; to it the hammer, which runs between the cheeks or framework, is attached, and the motion is communicated by the admission of steam into the cylinder in the ordinary manner. The regulation of the motion is effected by springs and screw-work, opening and closing valves connected with the steam-box or cylinder; and so nicely are these calculated and adjusted, that the machine is easily worked by a single man from a handle attached to the screws. The full fall of the hammer, 2 and a half tons weight, as we have noticed, is in reality 4 feet, but it is not considered safe to work it with a greater fall than 3 ft. 9 in. The weight of such a blow, and to which an impulsive power also can be given, can hardly be calculated; scarcely anything, indeed, seems capable of withstanding its crushing effect. About 25 tons of iron, besides more than a boat load of timber, are used in the foundation. One purpose to which we saw the machine applied, was shingling some of the best charcoal iron. The exhibition afforded much satisfaction to all present, and Mr. Nasmyth was warmly congratulated on his success in adding such a vast, yet manageable, power to our mechanical resources.—*Wolverhampton Chron.*

#### Atmospheric Railway.

The Railway Chronicle of May 8th says that engineering London was suddenly thrown into unusual excitement on Tuesday last, by the announcement that the CROYDON ATMOSPHERIC PIPES were pulled up and the plan abandoned. On making inquiry, we found that it had been decided to abandon the system; that the Atmospherics was not in operation; that locomotives were doing the work, and that the Atmospheric was doomed.

We confess our surprise at this sudden resolve. The same resolve might have been taken any time these twelve months with more show of reason than appears now on the face of the question. Never before was the Atmospheric doing so well, going so regularly, working so economically. The directors have for a couple of months been working a contract with Mr. Samuda, which contract gives them atmospheric power at less cost than the locomotive, and Mr. Samu-

da is said to have been well pleased with his contract, and the public service well performed. We were indulging the pleasing hope that now at least we should have twelve months' work of a new invention, a time by no means too long for such a trial as should enable us to decide on its merits. This trial is, however, to be cut short at its beginning.

Another reason encouraged the expectation that the trial would not be cut short now. The South Devon is only just completed; it is to have many advantages which this wants; more powerful engines, larger pipes, greater maturity of the invention. The opening of the south Devon would have formed, by its failure or success, a corroborate reason for ultimate abandonment or otherwise. We should have learned much more that would be useful to the public from the continuance of the Atmospheric for twelve months at least, than from its sudden stoppage; and the company would at least have given some knowledge to the public in return for all the cost, time and public inconvenience which an unproved experiment always entails.

We are the more sorry for this resolution, because, although we have from the beginning been regarded by the Advocates of the atmospheric system as its inveterate enemies, we have really opposed only what appeared to us the errors of the system; and while opposing its erroneous application, we have earnestly supported its having a fair trial. That trial we thought it would have had on the Croydon, and we are disappointed at this sudden resolution of the Board, which will, we think, give the advocates of the system something to complain of; and deprive all parties of the advantage of an unbiased decision.

We remember, too, that a committee had just been appointed by the Institution of Civil Engineers, consisting of Mr. WYNDHAM HARDING, Mr. FROUDE and Mr. SCOTT RUSSELL, to ascertain, by actual trials, the power required to move atmospheric trains at high speeds;—an investigation, the result of which would inevitably have thrown some light directly or indirectly, on the value of the system. This, we suppose, will not now take place, and is lost to the profession—unless, indeed, Mr. Brunel should offer the same privileges on the South Devon.

The practical reasons which have carried the point with the directors are variously given. We think the actual state of the matter is as follows:—When the Atmospheric was originally resolved on by the Croydon directors their third line to Croydon was to be an isolated line, doing only the Croydon traffic. The case is now altered; and the Croydon line has become a trunk line for the Epsom traffic and other future extensions. The Portsmouth line, too, is now a joint concern with the South-Western, which will have to work its own traffic over part of that line. Moreover, the Croydon is now, from amalgamation, one with a large and important group of lines, all worked by locomotive power, under one management and with one stock. The Croydon Atmospheric, also, is not complete: it does not

reach London; so that, in order to work the Epsom traffic with the present length of Atmospheric tube, there would require to be one set of locomotives at the London end of the line and another at the Croydon end; in short, two set of locomotives in addition to the Atmospheric, all working on one little line.

The sum of all these inconveniences is doubtless very great. But they are precisely the sort of inconveniences we have always pointed out as objections to any *exceptional system*, be it in gauge, or in power, or anything else. These inconveniences have all been visible ever since the Brighton and Croydon joined, and might have been acted on any time the last ten months, instead of going to all the expense of additional machinery and length of line.

What we object to is not the ultimate abandonment of the Atmospheric, which we have always declared very unlikely to supersede the locomotive in general, but the absurdity of incurring all the cost of the experiment, and suddenly abandoning it, one fine morning, when some little practical inconvenience, which had always been foreseen and predicted, came to pinch a little too hard; that is what, as advocates of fair-play to the Atmospheric, we must regret.

As the matter stands now, thus much has been proved—that the atmospheric pipes on the Croydon were too small, as we always said they were—that with light loads any desirable speed might be obtained—that the Atmospheric can work a regular and uniform traffic with fair regularity—that a single line may be worked with safety. But it has not disproved what we have always asserted, that for versatility, convenience, suitability to sudden emergency, adaptation to variations of traffic, and concentration of control, the locomotive possesses practical advantages which will make it very difficult for the Atmospheric or any stationary system to supersede it even on any considerable portion of the railways of the country. With these inevitable disadvantages, which we have always kept before our readers, we still ask them to await with patience the thorough trial of its merits, which we have no doubt Mr. Brunel will give it on the South Devon.

#### Richmond and Ohio Railroad.

In presenting the claims of this work to the consideration of the people of Virginia and the public, there are difficulties to be encountered of no ordinary character.

Throughout the Commonwealth, until within a very brief period, there has existed a very general apathy in regard to internal improvements, and for this reason, the great natural advantages of the State have been greatly overlooked in other parts of the Union.

The project of opening a continuous railway from the tide waters of the Chesapeake to the Ohio, through the heart of the State, is, in the opinion of those who have considered it, unsurpassed in importance by any other, whether regarded in relation to the direct bearing of this magnificent work upon the prosperity of Virginia, or in reference to



its character as a great national improvement.

In different parts of the state, however, there are strong predilections for merely local improvements, which have hitherto prevented any concentration of public sentiment in favor of any great state work as a basis of a system of railroads compatible with the interests and dignity of the Commonwealth.

Many, also, of the most intelligent and influential citizens of the State, have advocated a system of canals as preferable to railroads. Waiving, however, all discussion of this question, it is proposed to present some of the claims of the Richmond and Ohio Railroad, and a candid and impartial consideration of the subject is solicited.

The charter of this grand railway, authorized by several recent acts of the Legislature, is, beyond question, the most liberal in its provisions of any ever granted in the Union.

Among its provisions are the following most important:—

*First.* The company have an open charter from Richmond to some point on the Ohio, at or below the mouth of the Great Kanawha. Below Lynchburg, the route is confined to the south side of James River. This is, however, no objection, as it is in all respects the best route for the road, and the restriction was imposed to prevent an interference with the canal along the north side of the river.

*Second.*—The company have the right to construct an indefinite number of lateral roads twenty miles in length, on each side of the main stem.

*Third.* The capital stock is \$12,000,000, with a privilege to expend \$600,000 for lands west of the Blue Ridge, within the space of twenty miles of the road, and \$1,400,000 for various mining and manufacturing purposes within the same limits.

*Fourth.* The capital stock is exempt from taxation, as are also the dividends, unless they exceed six per cent per annum.

*Fifth.* The company have two years, from the 22d day of March, 1847, to enter upon the construction of the road, and after the expiration of three years, there must be completed and put in operation, annually, thirty miles, so that at least sixteen years are allowed for the completion of the road, estimating its whole length at four hundred miles.

*Sixth.* Full corporate powers are given as soon as one million of dollars has been subscribed, and one-fourth part thereof actually paid in.

*Seventh.* The maximum charge for travel is four cents per mile for each passenger, and from four to 8 cts. per ton per mile for freight.

*Eighth.* The Legislature can neither alter, amend or modify the charter; but after the expiration of sixty-six years from the 22d day of March, 1847, the State may purchase all the capital stock at par, on giving one year's previous notice.

*Ninth.* The company have the right to construct an electric telegraph along their road, and are unrestricted in their charges for conveying intelligence upon it.

*Tenth.* In case of forfeiture, by reason of

failing to comply with the requisitions of the charter, it shall extend only so far as to prevent the company from completing their road.

*Eleventh.* The charter is subject to the general railroad law of the state, excepting as above stated. This law contains general provisions necessary to all charters, and has nothing peculiarly important.

Such are some of the provisions of this most extraordinary charter, which has been pronounced to be "one of the most liberal and favorable in its provisions ever granted to any company." Indeed it appears that Virginia regards the construction of this road as of vital importance to the future prosperity of that State, and has accordingly held out great inducements to capitalists to embark in that enterprise." (*See Am. R. R. Journal, March, 1847.*)

In relation to the privilege of expending \$600,000 for lands, it may justly be affirmed that the judicious expenditure of that sum for lands in the interior of the State, would, upon the completion of this work, give the company a vast landed interest, which would be worth to them \$5,000,000. The manufacturing privileges are also of immense value, for it should be borne in mind that this great railway will pass through one of the most important coal and iron regions in the United States, embracing an inexhaustible water power, and all the other materials for manufacturing wealth.

These extraordinary privileges are beyond the reach of legislative interference for at least sixty-six years, unless they are abused by the company. This limitation gives the charter even greater value than though it were on the face of it perpetual. Questions might arise, whether any legislation could prevent subsequent legislatures from interfering with such broad and ample privileges in case their exercise should be deemed incompatible with the public good, but the limitation in the charter removes all doubt on this point and renders the right reserved to the Commonwealth to purchase the stock at par, at the end of sixty-six years, no objection.

The able editor of the American Railroad Journal, in speaking of this charter says, "We repeat that the entire provisions of this charter are upon the most liberal scale, and 'we are happy that so important a line of communication, as this will most assuredly prove, will by this charter possess all the requisite advantages for rendering it a profitable concern in future, while it will enable the managers to build a good road, and eventually to furnish the travelling public with the very best accommodations.'"—*Am. R. R. J. Vol. 19, p. 682.*

The general direction of this road will be along the valleys of the James and Kanawha rivers, whose branches interlock each other, so as to leave only the Allegheny proper to be surmounted. From the vicinity of Lynchburg several routes have been surveyed across the country, between these rivers. At whatever point the valley of the Kanawha is approached whether at the Horse-Shoe bend; the mouth of the Greenbrier, or the Gauley,

the route will be continued thence down the Kanawha to a point some fifteen miles below Charleston, and thence diverge to the mouth of the Guyandotte. The route which has been most accurately surveyed, and which is best known, is that which crosses the Allegheny, by the way of Dunlop's Creek, Fork river, and Howard's Creek in the vicinity of the White Sulphur Springs. The summit on this route is 1987 feet above tide water, and about 1400 feet above the mouth of the Guyandotte on the Ohio, and about the same elevation above Buchanan, the termination fixed for the canal.

In surmounting this summit the road will pass through a tunnel. The highest grade ascending to the west will be only about seventy feet per mile, for the short space of about five miles, and in ascending from the west, the highest grade will be only forty feet, for the distance of about three miles, so that all the heavy grades on the route will be in making the pass of the Allegheny, and that too within the space of about seven miles. At this place an extra engine could be employed to pass heavy trains loaded for lighter grades. In the direction of the heavy grade from west to east there will be no grade exceeding forty feet per mile, and that only for three miles and one-fourth. Of the balance of the route over the mountain region only one-half mile will be thirty-three feet to the mile, and the balance not exceeding twenty feet.

More accurate surveys of this route will probably reduce these grades, so that the highest will not exceed sixty feet per mile, and that only for five miles on the east slope of the mountain. The surveys already made, show that from the White Sulphur Springs, near which the heavy grades on the west slope will terminate, to the place of divergence in the Kanawha valley, the heaviest grade will not exceed twenty feet, and probably not more than twenty miles of the whole route will exceed that grade.

From the said point of divergence a deep cut on both sides of the dividing ridge between the Kanawha and the Mud river, and a short tunnel under the same, will be necessary. Beside this, the route will have not the least difficulty thence to the Ohio.

On the eastern slope of the mountain, between the mouth of Dunlop's Creek and Lynchburg, the route will lie along the Jackson and James rivers, in which no heavy grades will be encountered. Indeed this great railway, in point of grades, will most favorably compare with any other great line across the Alleghenies. Should the route take a more southerly direction, and strike the New River in Montgomery county, the gradients will be about the same.

The pass over the Allegheny on the route by the White Sulphur Springs is depressed much below that of the more northerly routes, being only above tide water, 1987 feet.

On the Baltimore line to Pittsburgh, it is 2290 feet.

On the Pennsylvania line, 2491 feet.

On the Great Central line to Pittsburgh, 2184 feet.

This line is therefore from 197 to 404 feet depressed below the others.

In respect to the gradients of this route, it will be found to be equally favorable on comparison.

On the Richmond and Ohio, the highest grade will be probably not exceeding say, per mile, 65 feet.

On the Western Railroad at three points, it is 80 feet.

On the Baltimore and Ohio, it is 82 feet.

On the Baltimore line to Pittsburg on the east and west slope, for twenty-seven miles, 66 feet.

On the N. Y. and E. for ten miles on the west slope, 60 feet.

And on the east slope, about the same distance, 57 feet.

On the "Great Central," according to Mr. Roebbling, [See *Am. R. R. Journal*, Feb. 27, 1847,] the highest average grade for thirty-two miles, ascending the west will be forty feet, varying from 26½ to 45 feet per mile. But, he remarks, "truth, however, prompts me to state, that in consequence of the great rise and fall in the Central road, the total equated distance from Pittsburg to the seaboard, appears to be in favor of the Baltimore route, from this it would follow that road will possess an advantage over the Central road in the transportation of freight, but of freight only, provided all the other relations are the same."

These remarks relate chiefly to the gradients generally upon these routes, without furnishing any certain data from which to compare their grades ascending to the east, in the direction of the heavy trade; but it is a matter of fair inference that in this respect, the Richmond and Ohio stands pre-eminent.

A glance at the map of the United States will present this line in a most favorable aspect in other important particulars.

The great railways which span the Alleghenies have all the same general direction from the seaboard to the lakes and the Mississippi valley, and are all nearly of the same extent.

Assuming New York on the tide waters, and Cincinnati and St. Louis, in the western valley, as the great centres of trade, it will be seen that these cities are nearly in a right line, and that the western termini of all these great lines of railway, except the Richmond and Ohio, are to the north of said direct line, and that Guyandotte is also from two to three hundred miles below the other termini, and opens the shortest and most direct route from the valley to the Atlantic.

The Virginia line therefore taps the Ohio river, at the most favorable point to divert the ascending trade and travel of the Ohio to the tide waters, and as will hereafter appear, open the cheapest communication between New York and Cincinnati. In these advantages this great line cannot be supplanted by any more southern route, for the obvious reason that any such route would not only be of greater extent between the valley and the Atlantic, but would also be out of the general course of business and travel which is from east to west or from north to south.

But this is not all. The more northerly routes will all be more or less obstructed by ice and snow for several months in the year; while this, from its more southern location, will experience very little if any inconvenience from that source.

This fact bears with great force upon the lines terminating at Philadelphia, New York and Boston, and more especially in so far as they will assume the character of rival lines, and depend upon the trade of the Mississippi valley.

In consequence of these difficulties on the great northern routes, and the dangers of the lake navigation in the fall and winter seasons, the trade and the travel between the east and the west are subjected not only to vexations and uncertain interruptions, but to serious damage and pecuniary embarrassments. Many a merchant can trace his total failure to this single cause, and many a western farmer also is subjected to a ruinous depreciation in the price of his produce. These very serious evils would, to a great extent, be removed by the completion of this great central-trunk through Virginia, where the products of the west would find through it an open passage to the Atlantic cities during all seasons of the year.

Hence, late in the fall, through the winter, and early in the spring, immense quantities of merchandise and produce would be transported over this route, while its rival thoroughfares would be obstructed.

The chief cities of the west being south and west of the western termini of these great arteries of business, it is evident from a moment's reflection, that there would be an accumulation of trade and travel upon the more southerly routes from those more northerly. For instance, none of the Atlantic cities would trade with the west through a channel more northerly than its own, while much of the business of each would flow through a more southerly line. Boston would carry on her rapidly increasing trade with the west as much as possible, through her own works, and yet at those seasons of the year, when they were even liable, to obstructions, she would transact much of her business through the New York and Virginia routes. The same remarks will apply with greater or less force to Philadelphia and Baltimore. But to none of the Atlantic cities does this view apply with so much force as to New York. Having through this great central railroad the most direct communication with the Queen City of the West, open at all seasons of the year, who does not see that the construction of this work will introduce a new era in the trade and commerce of the great emporium. While her own great works are obstructed, and the noble Hudson itself is frozen over, New York can still, through the Richmond and Ohio Railroad, carry on an active trade with Cincinnati and other cities in the west, and thus extend her business through the entire year, instead of crowding it into eight or nine months as at present. On reference to proper authorities it will be found that the average time the business of the Erie Canal has been obstructed by ice

during the last twenty years, is one hundred and twenty-four days per annum; and that of the Hudson river, from the same cause, is something over ninety-one days. Now, then, considering the hurry and confusion incident to the closing of navigation, and the delay and uncertainty upon its opening before business assumes its regular course, and the time of the interruption of business from this cause, may be safely stated at four months and a half in each year. New York then has a direct and most important interest in the construction of this great central improvement of Virginia. By means of her own canals and railroads, she can with one hand grasp the trade of the West, in successful competition with her eastern rival, Boston—while, through this Virginia line, she can control with the other hand, a majority of the same trade, as against Philadelphia and Baltimore, her powerful competitors on the south. [See *Hunt's M. Mag.*, Sept., 1846.]

These considerations attach great importance to the fact, that this route is the most southerly of all the great lines across the Alleghenies, and justify the inference, that there will be a vast accumulation of business upon it from all the more northerly lines, during the cold seasons of the year. On the other hand, during the seasons of low water in the Ohio, which occurs so frequently in that river, and occasions great delays and interruptions of trade and travel, this Virginia route will have a very important advantage over its northern rivals, inasmuch as it will tap the Ohio so low as almost entirely to obviate these objections to the Baltimore and Philadelphia lines. That Baltimore fully appreciates the force of this remark, is evidenced by her long and strenuous efforts to make the terminus of her great work at Parkersburgh, or some point below Wheeling. The able advocate of the "Great Central," in relation to this subject fully sustains the importance of this view. In speaking of the Philadelphia line he remarks that, "Owing to its more southern location, this road will be less impeded by snow than its northern rivals, which is also an important advantage."

Now when it is considered that the summit level of the Great Central is one hundred and ninety-seven feet above that of the Richmond and Ohio, and some one hundred and fifty miles farther north, it will be seen that if what Mr. Roebbling has said of the advantage of the Pennsylvania line over its northern rivals be true, as undoubtedly it is, the same will apply with much more force to the Richmond and Ohio.

Again in relation to the Virginia line, the same writer remarks, "This route when constructed, will form the most direct communication between the Atlantic and the West;" and as compared with the Baltimore road we have his further testimony, "that the Richmond and Ohio road will prove the most formidable rival of the Baltimore and Ohio, as it will intercept all the trade of the Ohio river below Parkersburgh, and will not allow it to reach the termination of the Baltimore and Ohio line."



These admissions, coming from an able and candid advocate of a rival line, are entitled to great weight. And it is well worth the remark, that the Philadelphians, in striking out the plan of their "Great Central," which is a most magnificent project, have virtually abandoned the contest for the business of the Ohio valley.

While the friends of the Virginia line believe, therefore, that they hold a vantage ground in contending for this noble prize, they would cheerfully respond to the liberal sentiment expressed by the eloquent advocate of the Philadelphia line, "that a generous, high-minded and honorable rivalry shall prompt us in the pursuit of our enterprise, we will remember that the great west offers room for us all."

Another distinguishing feature of the Virginia road is its central location in the Union. As a great thoroughfare between the Atlantic and the valley-world of the West, it has more of a national character than any of its more northern rivals. Extending from that point of the Ohio river which approximates nearest to tide water, this great railway will pass through nearly the geographical centre of the United States from North to South, and connect with the mouth of the Chesapeake, which has the best harbors and naval station on our coast.

The mouth of this noble bay, as a commercial centre of the republic, would, by means of this road extending into the heart of the west by the shortest route, open greater facilities for trade with all parts of the Union than any other point on the Atlantic coast. Startling as this assertion may seem, it will be made evident by considering the distances of the several great lines, between Cincinnati and the Atlantic cities:

From Cincinnati to Richmond, by the Richmond and Ohio Railroad, the distance will be	560 miles.
To Baltimore, via Wheeling,	757 "
To Philadelphia, via Pittsburg,	877 "
To New York, via Pittsburg,	963 "
To New York by Ohio and Erie Canal,	1126 "
To New York, by the Lake and N. Y. and E. Railroad,	1050 "

Thus by the present routes, the distance from Cincinnati to tide water is altogether in favor of the Virginia line, varying from 197 to 566 miles.

But should it be said that at Richmond you are 130 miles from Norfolk, and 126 from the Capes, it may be replied that at New York you are 20 miles from the ocean; at Philadelphia 105 miles, and at Baltimore 200 miles; so that making these additions, the distances would stand:

From Cincinnati, via Richmond, to the Ocean,	690 miles.
From Cincinnati, via Baltimore and the bay,	957 "
From Cincinnati, via Philadelphia and Del. river,	982 "

still showing a great balance in our favor. But let us take another view, and suppose the Baltimore line extended to Wheeling, and thence to Cincinnati, and the "Great

Central" completed through to St. Louis, and how will stand the account then?

From Cincinnati to Richmond, as before, 560 miles.

From Cincinnati to Baltimore, estimating the distance from Wheeling to Cincinnati to be 250 miles, 621 miles. From Cincinnati to Philadelphia, counting the distance by the improved route from Philadelphia to Pittsburgh, only 330 miles, thence to Steubenville, 50 miles, thence to Cincinnati 250 miles, and we have 630 miles. And still the distance is in favor of the Richmond and Ohio Railroad. These distances from Steubenville and Wheeling by railroad are only estimated distances, and not known to be entirely correct.

But as between the city of New York and Cincinnati, the distances by these great lines stand thus:

By the Richmond and Ohio, via Baltimore,	910 miles.
By the Baltimore and Ohio, via Wheeling,	939 "
By the Philadelphia line, via Pittsburg,	963 "

It must in candor be admitted, however, that the distance from New York to Cincinnati by the contemplated "Great Central" will be less than by the Richmond route, and the same may be said of the extension of the Baltimore and Ohio west of the river, should that ever occur. It is, however, extremely improbable that both of these lines will be extended through the interior of Ohio to Cincinnati, as they would be nearly parallel, and would come into ruinous competition with each other. But, on the other hand, it should be considered that the southern route between New York and Cincinnati and St. Louis, of which the great Virginia line will form the most important link, may be much shortened. When the railroad from Richmond to the head of the York river, authorized by an act of the last Legislature, shall have been made, and a road continued from its eastern termination on to some point near the mouth of the Rappahannock, the communication between Richmond and the Chesapeake will be much improved. Should this route be extended across the bay, and on in a line to the Delaware Breakwater, the distance would be much shortened between both New York and Philadelphia and Richmond. If this line should be continued from some point opposite the Breakwater, through the whole length of New Jersey to New York, the distance between the latter and Richmond would be still further reduced. By this means New York and Richmond would be brought into direct communication, and within twelve hours of each other. Thus the advantage of the "Great Central" in opening a communication between New York and St. Louis, over that of the great southern line, would become very inconsiderable in point of distance. That the increasing implications of business between the Empire City and Richmond, occasioned by opening the Richmond and Ohio Railroad, would justify the extension of this route, to facilitate the intercourse between the latter city and New York and Philadelphia, no reflecting

mind can doubt. The extension of the great Virginia line also from its western termination at Guyandotte on to Louisville, and thence to St. Louis, would reduce still more the distance between New York and St. Louis, and render the Virginia line as short, or nearly so, as the route by the "Great Central."

In any point of view, therefore, as a great channel of trade and travel connecting the West with New York, the Richmond and Ohio will not suffer in the comparison. Again, while the northern lines will be active and powerful competitors with the Richmond line for the trade originating around the lakes and north of the Ohio, the latter will have a decided advantage over them all for the business of the valley proper of the Ohio river, and for that arising south and south-west of it. This view, in connection with the other advantages already mentioned, and which are peculiar to the location of this route, gives it an importance which every intelligent man must appreciate. In other words, the rivalry of these great lines for the immense business of the West, will, in a great degree, be confined to the country lying north and west of the Ohio, while the Virginia road will offer the quickest and cheapest outlet for the whole country on the south and south-west of the Ohio. The business arising in the latter portion of the Union in making progress east and north, will encounter this line first, through which it will find at all seasons, an open channel to the Atlantic. Should this line be extended to Louisville, and thence to St. Louis, it will undoubtedly secure a majority of the southwestern trade.

But these considerations, conclusive as they may be to show the importance of the Richmond and Ohio Railroad, as a great line of communication between the east and west, relate rather to the advantages which New York and the northern and eastern cities would derive from it, and are not based on the assumption, that within the state of Virginia there will be created great commercial marts, which will powerfully attract the trade and travel of the Mississippi valley. We forget the important fact, that since the opening of this vast valley of the west, within the last twenty years new cities have sprung up, as if by magic, in what was before an unbroken wilderness, and that these cities are rapidly becoming centres of an immense trade, giving new directions to the course of business, and creating new currents, along which the wealth and commerce of the country are pouring in upon them. While these cities are thus rising into notice, why should not Richmond and Norfolk, situated upon tide waters, and with the shortest communication with the whole west, become great commercial marts, and the centres of an immense trade, both foreign and domestic?

Let us, therefore, examine what would be the probable effects of the Richmond and Ohio Railroad upon the general prosperity of the commonwealth, and upon our own eastern cities of Richmond and Norfolk.

To be continued.

# CHILLED CAST IRON WHEELS FOR RAILROADS.

**ANNEXED ARE LITHOGRAPHS OF CHILLED CAST IRON RAILROAD WHEELS,** to which I would call attention.

Having been extensively engaged, for 12 years past, in the manufacture of Chilled Wheels, both for Engines and Cars, I recommend them as a good article. The result of my long experience has pointed out various improvements in the form of Spoke, disposal of Metal in the Rim of Wheels, and the mixture of Iron in the Foundry; I feel confidence, therefore, in saying, that my wheels are, in every respect, equal to the best that are made in the country.

The Ring Wheel is a patent article, and from long experience has been found to be superior to every other description of chilled wheels. A Malleable Iron Ring is cast in the Body of each Wheel, which serves the purpose of Chilling much more perfectly, immediately over the Ring, and at the Joint of the Tread and Flanch, than can be done by any other mode. This part of a wheel is rarely well chilled without the use of the ring, and the severe action when in use at this particular point on a wheel, wears it most rapidly away, and renders them unfit for use, notwithstanding the other parts are well chilled. The wrought iron ring also secures the cast iron wheel against the liability of disaster from breakage.

I would call attention also to the Shape given each Spoke: they are formed on the same principle as the Tapered Axle, and relieve the Wheel from sudden shocks, by a proper distribution of the vibrations caused by such shocks, and which if allowed to centre at one point, soon break the wheel. The disposition of the metal in the rim is found, on long experience, to be the best for chilling.

The Chilled Driving Wheels, for Locomotive Engines, I can also recommend, as well on their own merits, as the fact that the demand for them has very materially increased during the past two years. The Baltimore and Ohio, Baltimore and Susquehanna, and Philadelphia, Wilmington and Baltimore Railroads use them entirely. These wheels have to recommend them—that they are much lighter than the cast iron wheels with wrought iron tires; their use entirely does away with the expense and trouble in the constant turning and refitting consequent upon the use of wrought iron tires, and their first cost is materially less than that of wrought iron tired wheels—the chilled wheels being about one-half, and their durability is double that of tired wheels.

These facts, together with the assurance of the Roads immediately around me, that engines which have had chilled drivers substituted for wrought iron tired wheels, evinced no want of tractive power, growing out of such a change, but performed their daily work with the same ease and with less trouble than heretofore, suggest the propriety of calling attention to them.

Wheels, with or without rings, of any particular stand of hub, or pattern, (when the order is such as to warrant the expense,) other than the drawings show, will be forwarded to order with despatch, either in the rough, or keyed and banded, or fitted on axles, as may be desired. I have on hand various other wheel patterns, not represented in Lithograph; these I send a sketch of as most used at present.

Railroad Work of all kinds I am extensively engaged in the manufacture of: Locomotives for Freight or Passenger Transportation, Iron Cars for Coal, Frame cars and Trucks, together with Stationary Engines and foundry work of all descriptions.

Address ROSS WINANS, Baltimore, Md.

## Railway Speed.

The Hampshire (England) Independent says that the express train on the Southwestern Railway is about to be still further accelerated. The regularity with which the journey has been hitherto performed has induced some experiments—and it is found that the whole distance between Southampton and London (nearly eighty miles) can be regularly and safely done in an hour and three-quarters. The evening train from Southampton to London—starting at seven o'clock, is about to be replaced on the Southwestern railway—giving increased accommodation in the summer months. It will leave probably at seven, and arrive in London at ten o'clock.

## ITEMS.

**Cheshire Railroad.**—The annual meeting of the stockholders in the Cheshire Railroad took place in Keene on Tuesday. The following gentlemen were elected directors: Thomas M. Edwards, Salma Hale, and Benjamin F. Adams, of Keene, Abel Phelps and Thomas Thatcher of Boston, Hiram Hosmer of Watertown, and Ephraim Murdock, Jr., of Winchendon. The directors' report was very satisfactory, showing steady progress and flattering prospects for the road. A resolution

was unanimously adopted to pay to persons holding stock fully paid, on the 1st of July next, interest on their assessments according to the date of the payments thereon. The Keene Sentinel states that it is believed the road will be opened to Winchendon, if not to Fitzwilliam, (twelve miles from Keene) by the 1st of August, and to Keene by the 1st of December.

**At a special meeting of the Eastern Railroad Company on Monday at Salem,** the contracts with the Portland, Saco and Portsmouth Railroad were sanctioned; the Company accepted the power to take stock in the Grand Junction Railroad Company, and authorized the Directors to make such arrangements with that company as might seem to them for the interest of the Eastern Railroad.

## Kennebec, Bath, and Portland Railroad.

—The ceremony of breaking ground upon the Kennebec, Bath, and Portland Railroad, says the Portland Advertiser, was performed at Bath on Wednesday last. There was a grand celebration on the occasion. A procession was formed, escorted by a volunteer

company, truckmen mounted, and cavalcade mounted, and proceeded through the principal streets of the town to the building, where a free collation was partaken of. The ceremony of breaking ground was performed by Capt. George F. Patten and Mr. McKeen, two of the directors, after which Mr. McKeen made a statement in relation to the affairs of the company, showing it to be in a very prosperous condition. Speeches were made by several gentlemen, and the whole affair passed off in the most agreeable manner.—*Boston Atlas.*

**The Bridge.**—The committee on railroads has reported favorably to the repeal of the bridge clause of the New York and Boston railroad charter. A dissenting report was made by Mr. Dewing. The majority report says that they had fully heard the parties by their counsel, and had duly considered the evidence introduced, and that in their judgment the interests to be promoted by the proposed road were not sufficiently important to justify a sacrifice of the vast and various interests dependent on the uninterrupted navigation of the Connecticut river. That in



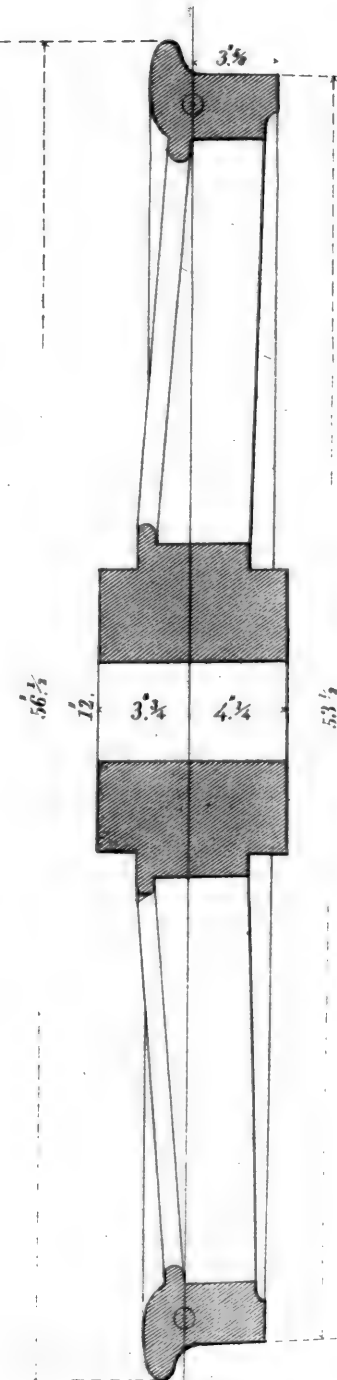
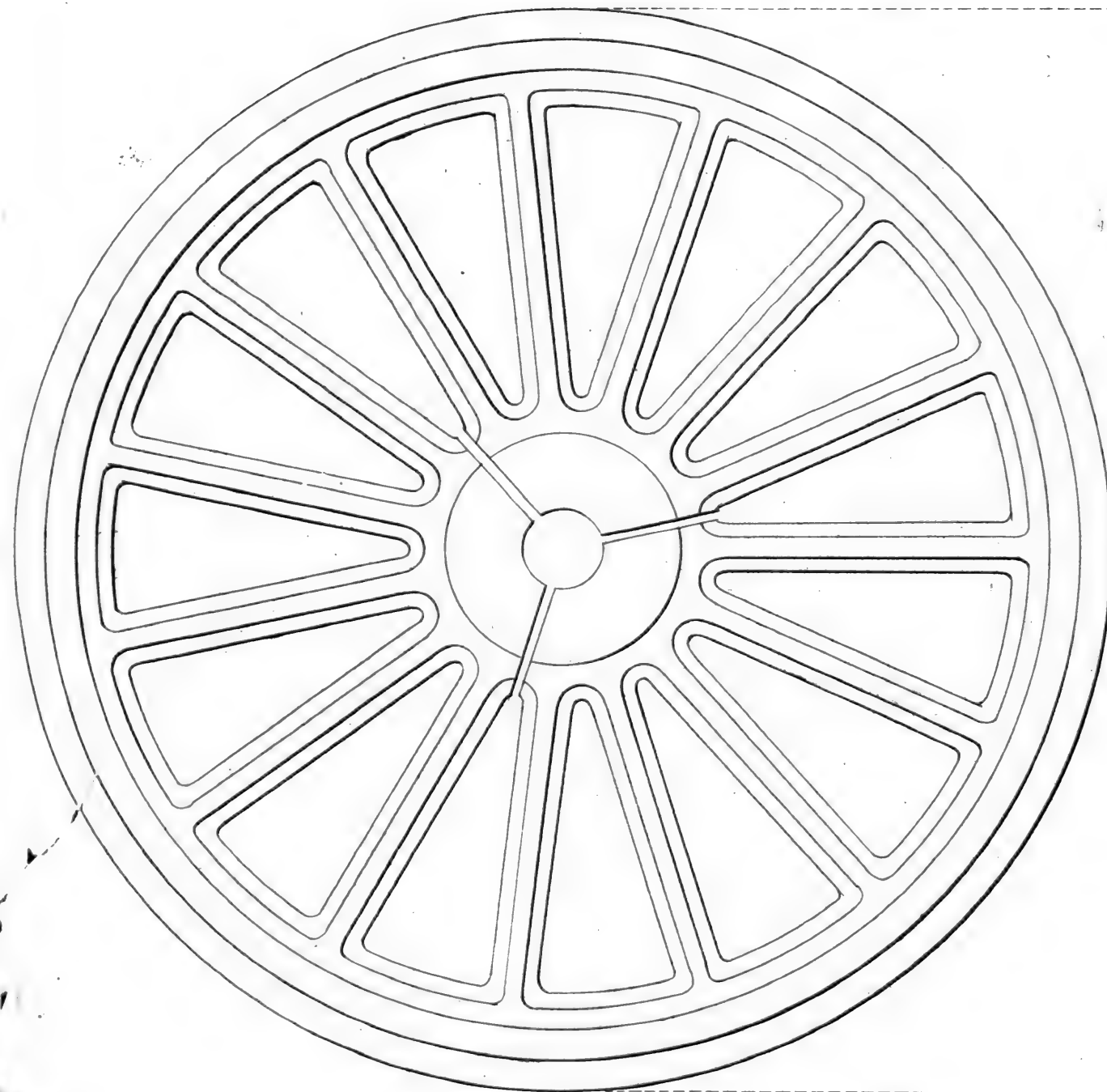
# CHILLED CAST IRON RAIL ROAD WHEELS

Manufactured by

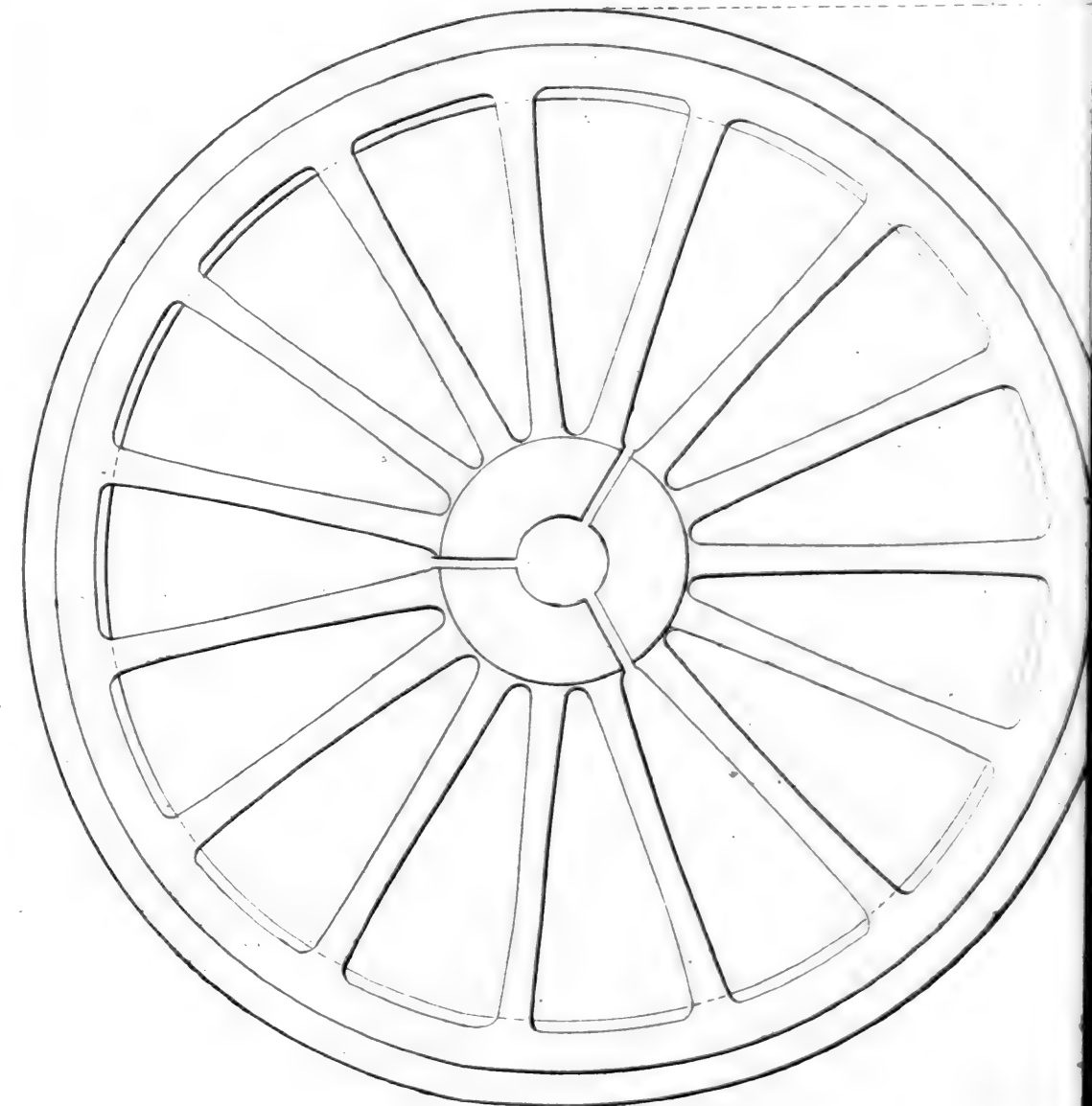
## ROSS WINANS

BALTIMORE MD

4½ foot Engine Wheel  
*Used on Lowell & other Engines*  
1200 lb.



46 inch Engine Wheel  
*Used on Reading & other Roads*  
1000 lb.



# IRON RAIL ROAD WHEELS

Manufactured by

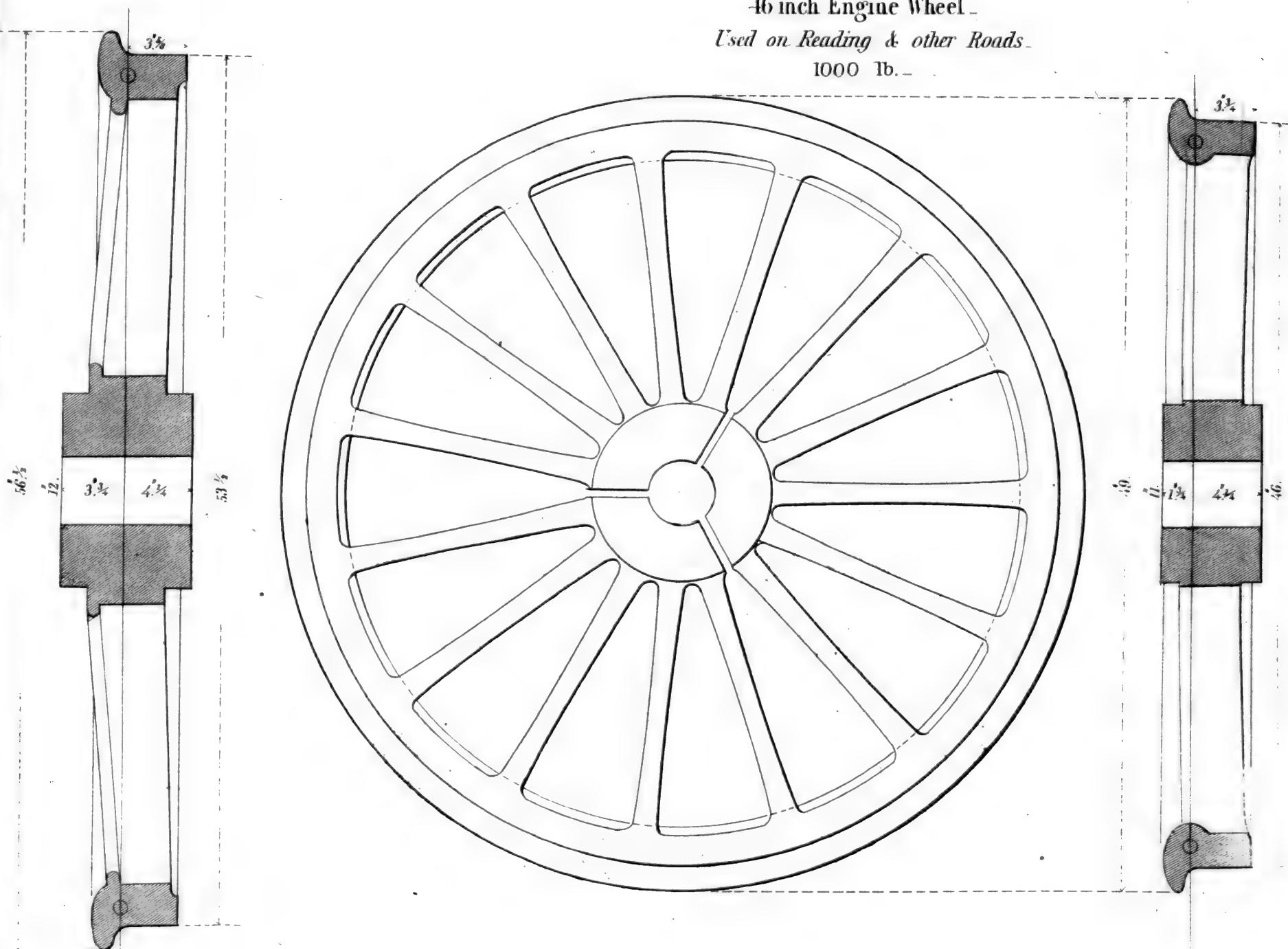
## S WINANS

BALTIMORE MD

46 inch Engine Wheel.

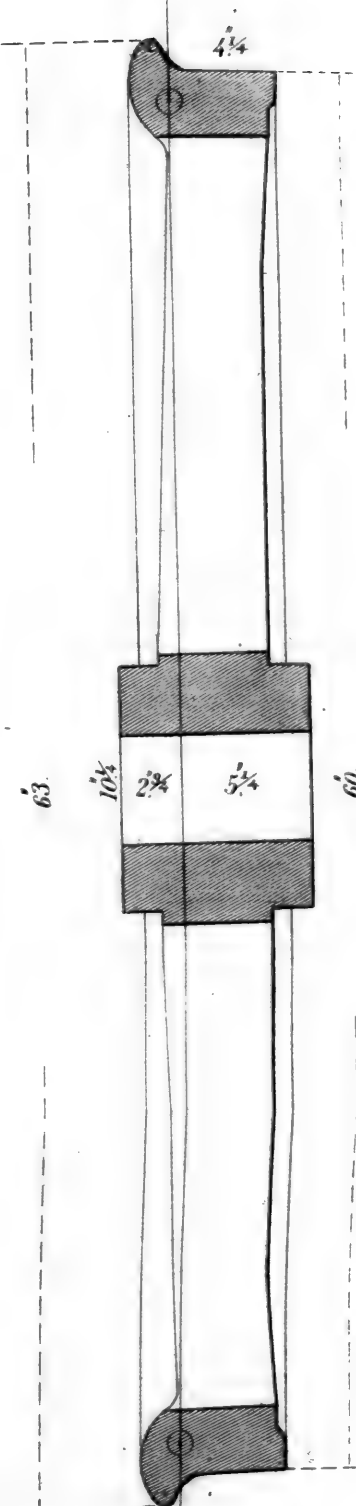
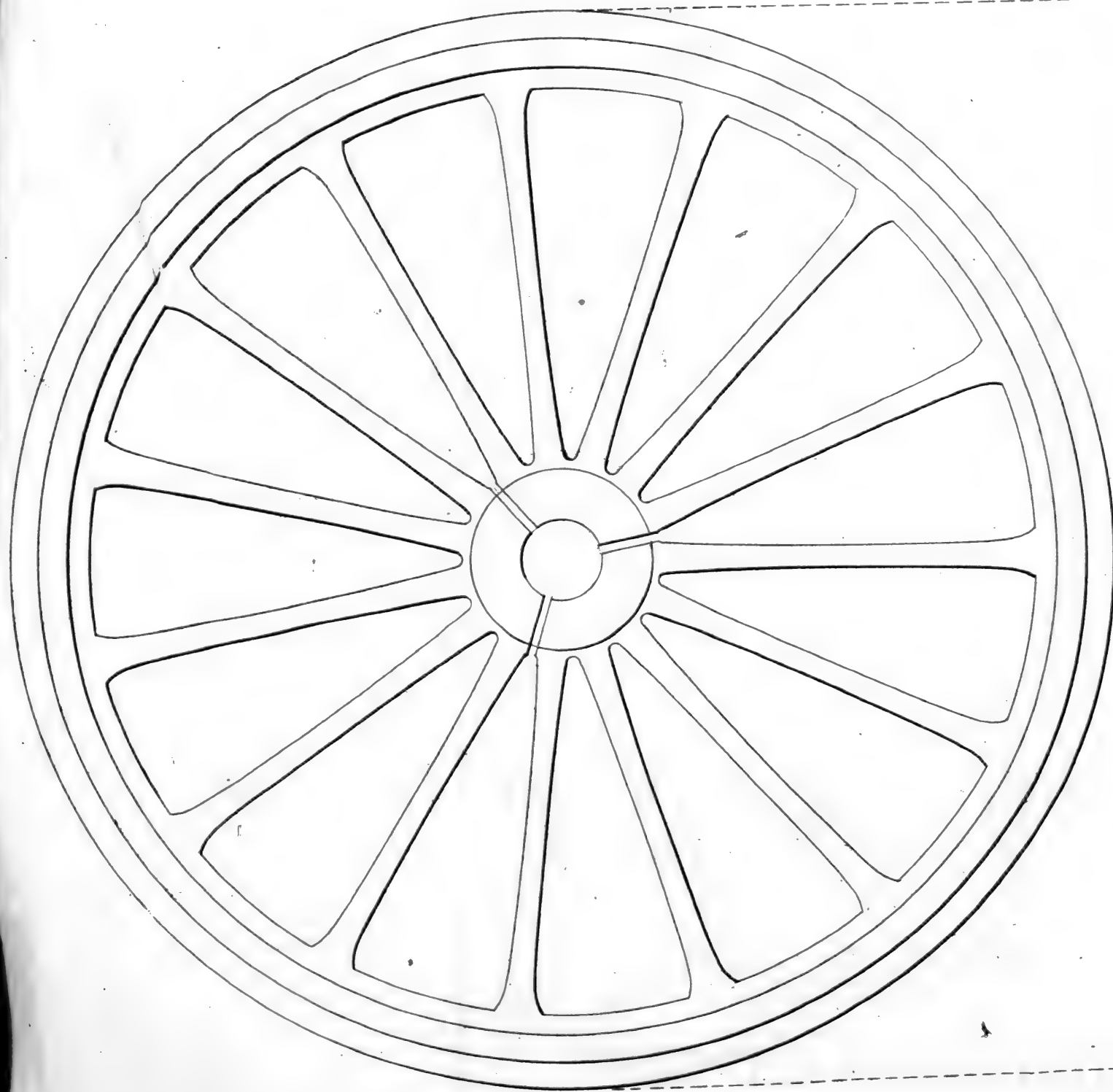
*Used on Reading & other Roads.*

1000 lb.

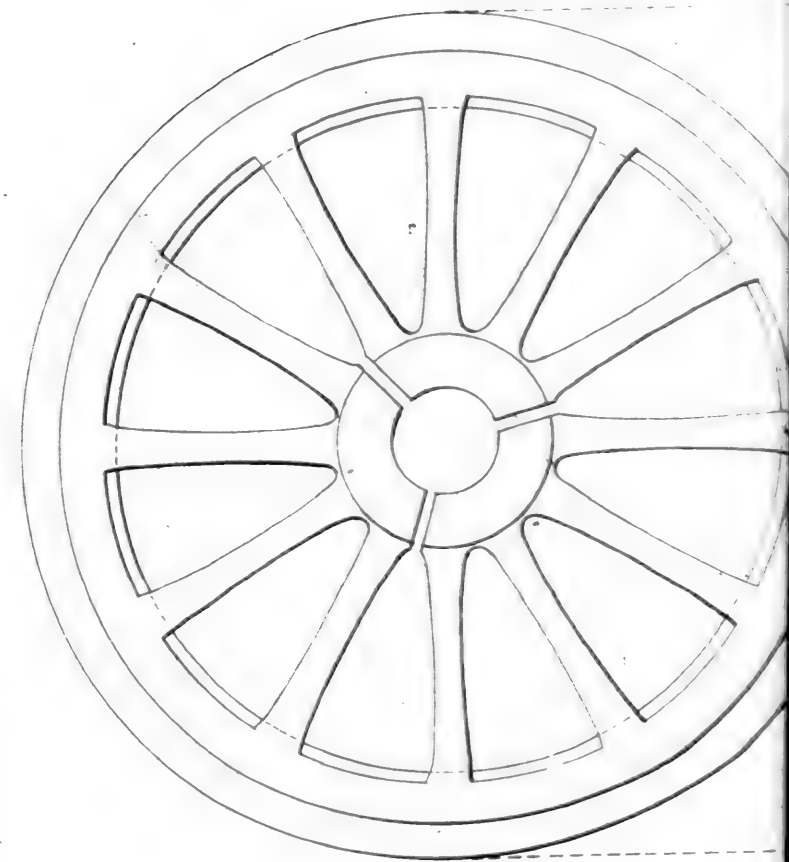




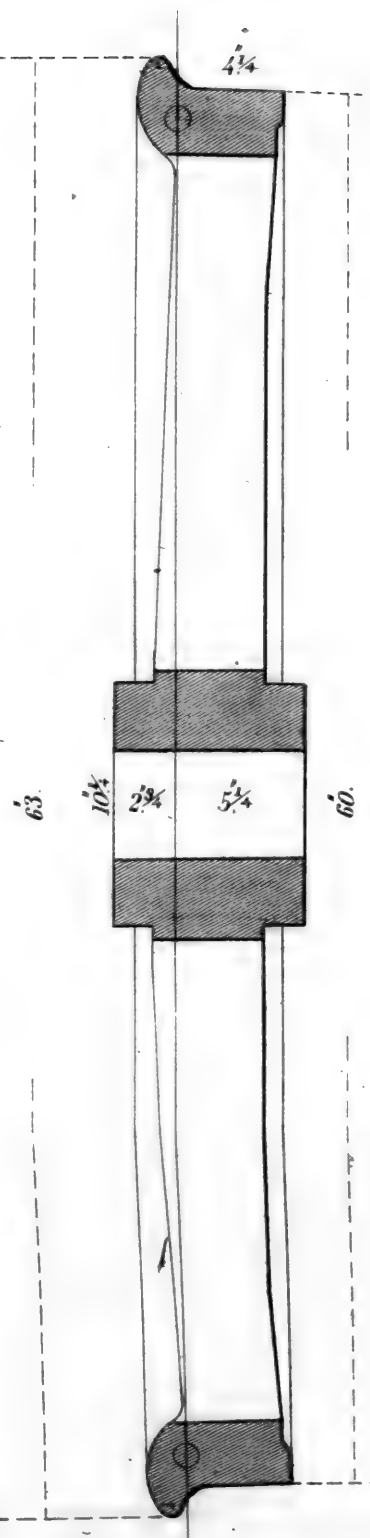
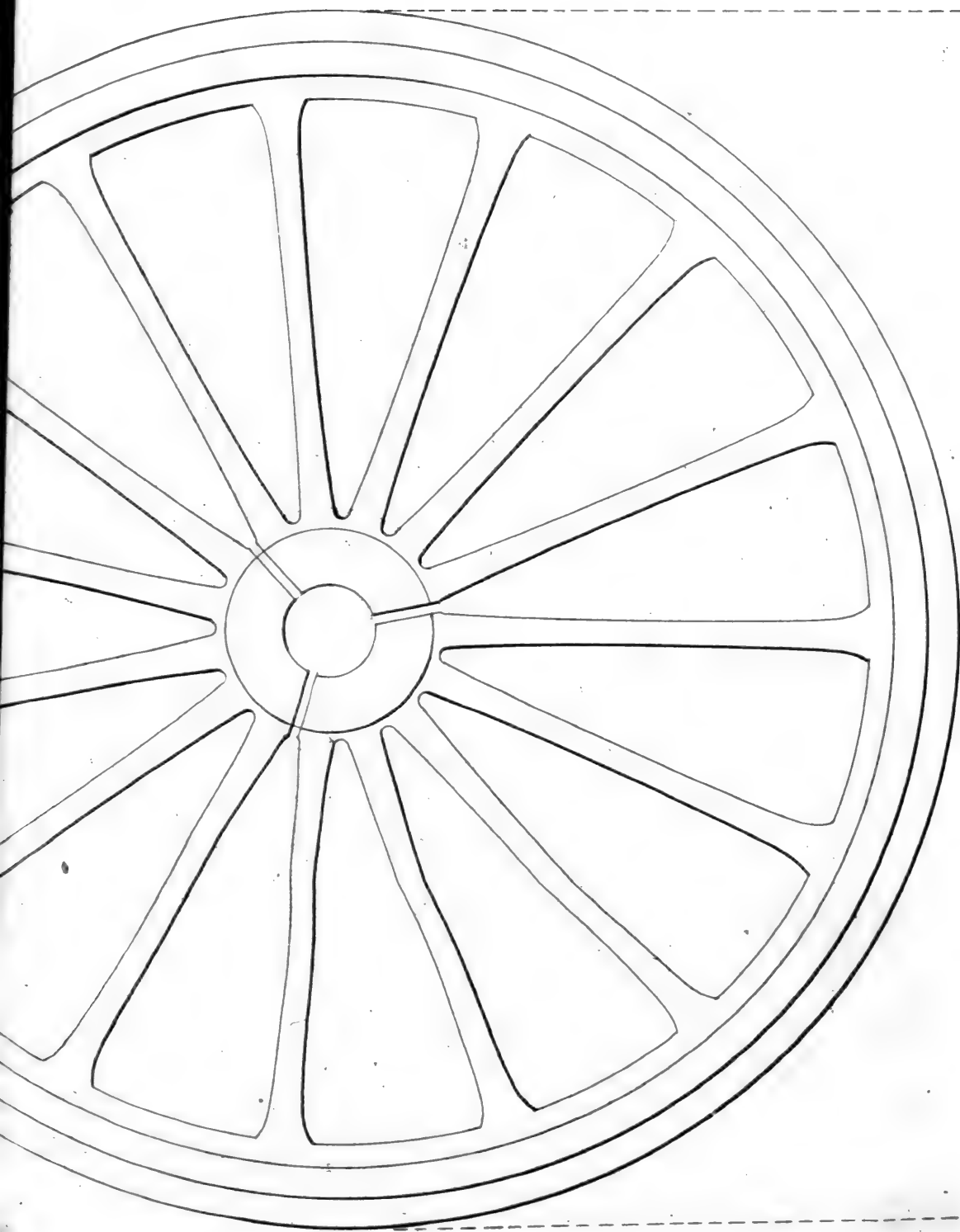
5 foot Engine Wheel  
*Used on Lowell & other Engines*  
 1550 lb.



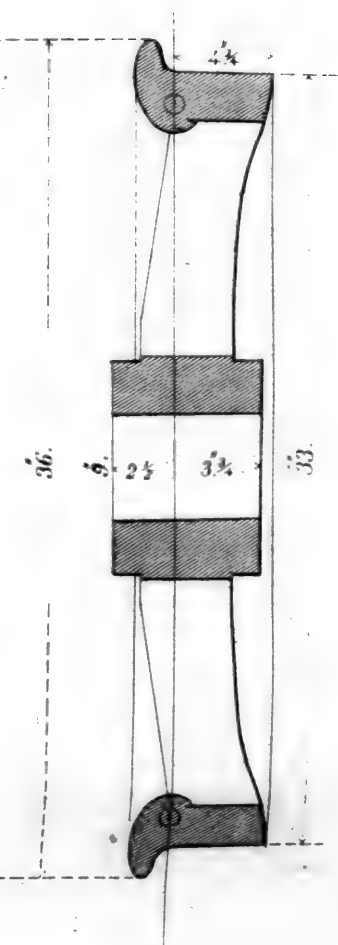
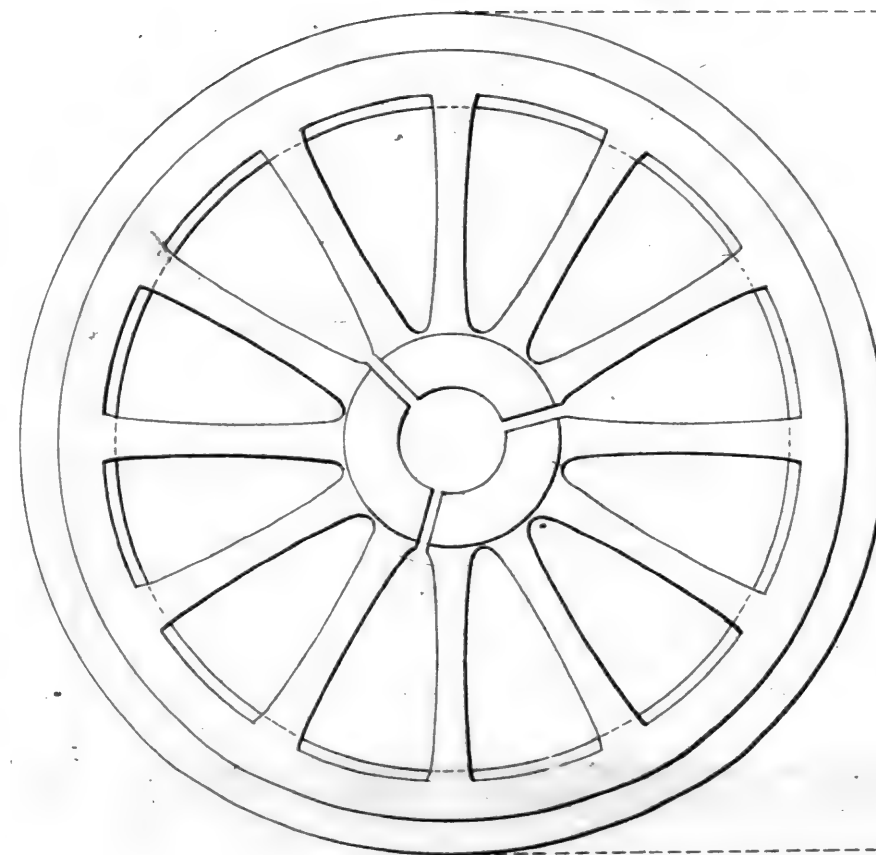
33 inch Engine Wheel  
*Used on Ball & Ohio & West*  
 565 lb.



5 foot Engine Wheel  
*Used on Lowell & other Engines*  
 1550 lb.



33 inch Engine Wheel  
*Used on Ball & Ohio & Western R. Rs.*  
 565 lb.



1874-1875



their judgment a bridge such as the 17th section of the charter of that railroad authorizes would seriously obstruct the navigation of the river, and should not be erected. They therefore reported a resolution repeating that clause, and as a substitute therefor, giving the company power to erect a bridge at the narrows below Middletown, at a certain prescribed height above the channel of the river at low water mark, or to maintain a ferry at any point between Portland and Middletown.

Mr. Dewing's minority report rested on the ground that the whole matter had been well settled by the last legislature, and that no new reason had been given for revising it; that he was not satisfied that such a bridge would cause the obstructions apprehended; that whether it would or not could only be known by actual trial, and if on trial such an effect was produced, nobody would complain of the removal of the bridge. The committee consisted of one senator and eight representatives. The reports were made the order of the day on Friday.—*Hart. Courant.*

The northern railway of the Emperor Ferdinand was opened on the 7th of April, as far as Odensburg, in Prussian Silesia. It completes the largest line of railway projected in Germany, and unites Vienna, Berlin and Hamburg, three of the most important mercantile towns in the German confederation.

**Nashville and Chattanooga Railroad.**—We are informed, that on Friday evening the corporate authorities of Nashville passed an Act on its first reading, providing for the taking of the stock in the Nashville and Chattanooga Railroad to the amount of \$500,000. The friends of the road will now see that the enterprise must go ahead. We shall publish the official action of the board as soon as we are placed in possession of it.—*Tennessee Papers.*

## GUN-COTTON.

From the interest which attaches to authentic particulars of experiments with this new power, we are pleased to announce, that we shall be enabled to place before our readers reports of trials in all parts of the country, and from a source which will remove all doubt of accuracy in description or detail. Annexed is the first of a series of promised communications, which we shall publish as frequently as received.—*Mining Journal.*

Sir—I beg to enclose you my report in blasting gun-cotton against gunpowder, in the Greeston cutting, now making for the Syston and Peterborough Railway, near Stamford. The several experiments were conducted with every principle of fairness, in the presence of Mr. Grafton, Mr. Birnie, the resident engineer of that portion of the line, and several gentlemen living in the neighborhood.

I wish to remark, in placing these trials before you in a tabular form, that the cutting in which they were made, is through a hard freestone foundation; the entire depth of the cutting at this part is about 28 feet, the upper portion of which is composed of

clay and a loose rubble, under which lie beds of freestones varying in thickness. The thickness of the layer upon which these experiments were made, is about five feet. It was greatly to be regretted, that the character of the ground was such, as not to allow me to test the powers of gun-cotton on a more extensive scale: you will see that they are all small charges, still the results were most satisfactory to every person present; and none were more convinced of its superiority over gunpowder than the men engaged upon the work. The cubical quantity of the stone heaved and removed by the several explosions, was in many instances estimated by Mr. Birnie, the engineer present, who took a very lively interest in the matter, and who appeared highly gratified at the advantages derivable from the use of gun-cotton in all operations where blasting is essential.

These experiments show that the average powers of the patent gun-cotton in blasting, is proved to be in the proportion of one of gun-cotton to six of gunpowder; so that where six holes are necessary when powder is used, only one hole is necessary when the gun-cotton is substituted, whereby a great saving of time, labor, and expense in all blasting operations, whether in open cuttings, tunnels, or deep mines, is effected, and proves the invention of gun-cotton to be invaluable.

JOHN F. WHEELER.

Stamford Hotel, Stamford, April 21.

The above proportions of gunpowder and gun-cotton were tried in the Greeston cutting, near Stamford, being a part of the Syston and Peterborough line, now in progress.

No. of Expts.	Pro- portion.	Weight of Gun-cotton in ounces.	Weight of Gunpowder in ounces.	Depth of Hole.	Diameter of Hole.	Number of Stone Removed.	Weight of the Stone Removed.
1	4 to 1	Loose	8	3 feet.	2 inches	80	6 tons.
2	1 to 4	Ditto	2	3 feet.	"	125	10 tons nearly
3	1 to 4	Ditto	2	3 ft. 9 in.	"	106	8 tons.
4	1 to 2	In paper tubes.	3	3 ft.	"	320	34 tons nearly
5	1 to 2	Ditto	3	3 feet.	"	180	14 tons.
6	8 to 1	In paper tubes.	11	1 ft. 8 in.	1 1/2 inch	40	3 tons.
7	1 to 8	Loose	1	1 foot.	"	34	2 1/2 tons.
8	1 to 8	Ditto	1	1 foot.	"	19	1 1/2 tons.
9	1 to 8	Ditto	1	1 foot.	"	—	—
10	1 to 8	Ditto	1	1 foot.	"	—	—

TABLE OF EXPERIMENTS, etc.

## Massachusetts Railroads in 1846.

NAME.	Length.	REVENUE.					EXPENSES.					NUMBER OF MILES RUN.					No. of passengers carried in the cars.					Tons of merchandise carried in the cars.				
		Cut.	From passengers	From freight, etc.	Total.	Road bed.	Motive power.	Miscellaneous.	Total.	Net income.	Passenger trains.	Freight trains.	Total.	Receipts per mile.	Expenses per mile.	Net increase per mile.	No. of passengers carried in the cars.	Tons of merchandise carried in the cars.	No. of passengers carried in one mile.	Tons of merchandise carried in one mile.						
Worcester	45	\$3,456,232	\$274,793	\$274,919	\$554,712	\$17,445	\$67,363	\$169,168	\$283,876	\$270,836	195,692	99,291	294,983	777.18	996.92	470.319	179,325	12,766,532	6,941,291	12,766,532						
Western	155	8,135,798	389,961	488,558	878,517	83,267	89,453	239,191	412,679	465,738	215,369	338,587	573,966	5.68	7.02	0.61	265,664	166,394	14,273,181	15,748,232						
Norwich & Worcester	68	2,178,788	150,385	91,538	241,910	106,446	4,400	2,586	14,768	21,753	69,825	2,700	62,525	3.61	0.93	0.60	186,190	198,214	1,369,800	198,214						
Connecticut River	36	1,010,512	39,756	18,491	58,247																					
Pittsfield & N. Adams	19	365,420																								
Berchmont	21	500,000			35,000																					
Old Colony	37	1,307,089	101,856	23,853	125,711	8,604	6,273	42,353	57,230	68,481	7,644	13,104	20,748	7.00	1.74	0.74	13,234	16,197	3,459,291	299,394						
Providence	41	2,109,455	220,486	130,389	360,875	25,440	34,302	109,937	169,679	191,196	140,874	58,054	198,928	9.06	1.81	0.85	913,144	82,192	7,483,177	1,962,798						
Stoughton	5	93,970	4,707	4,020	8,726	694	599	2,707	4,000	4,736			4,992	5.03	1.75	0.80	476,515									
Taunton	11	293,448	36,283	20,940	57,223	6,775	3,380	14,904	25,050	32,164	50,549	7,942	28,490	10.96	2.01	0.88	117,945	25,607	1,290,251	281,678						
New Bedford	20	436,411	61,903	20,447	82,350	11,891	6,110	23,388	41,379	43,971	59,158	19,610	78,798	9.56	1.08	0.52	94,167	11,013	1,516,418	218,817						
Fall River	42	628,083	22,520	6,183	35,703	3,501	3,973	17,894	25,396	10,335	26,756	52,160	48,910	1.24	0.73	0.60	59,382	5,257								
Fitchburg	49	1,875,319	126,838	157,407	284,245	17,410	17,396	80,211	115,047	169,198	140,424	69,888	200,312	9.02	1.42	0.57	327,034	501,800	5,981,872	3,351,310						
Leicester	7	177,349																								
Lowell	26	1,940,418	185,235	198,867	384,102	42,301	52,883	117,050	212,234	171,868	134,633	66,208	300,841	8.85	1.91	1.06	400,886	222,831	8,411,457	6,626,777						
Nashua	14	500,000	59,093	68,404	127,497	24,941	10,054	35,285	70,290	57,217	28,515	20,350	48,870	11.44	2.63	1.41	192,572	126,502	2,678,513	1,835,189						
Boston and Maine	73	2,629,746	212,094	119,341	331,435	20,077	25,096	116,864	162,037	169,401	204,401	73,238	277,639	6.44	1.19	0.58	460,426	61,599	4,474,241	3,074,950						
Eastern	38	2,220,869	310,061	61,277	371,338	21,432	14,778	101,504	137,804	223,534	201,626	51,426	253,052	10.61	1.46	0.54	786,736	38,013	12,575,386	1,090,412						
	707	\$30,244,927	\$2,220,863	\$1,684,641	\$3,910,504	\$24,644,334	\$145,098,023	\$1,856,812	\$2,048,692	\$1,611,929	\$48,880	\$2,565,801	\$6,891,510	7.72	1.73	0.79	4,062,934	2,234,941	18,250,809	40,634,074						

\* Let to Western Railroad. † Let to Housatonic Railroad. ‡ Let to Fitchburg Railroad.

**Magnetic Telegraph in Virginia.**

The following bill was, we understand, passed by the Virginia Legislature, at its last session.

*Be it enacted by the General Assembly,* That the Richmond, Fredericksburg and Potomac railroad company, the Richmond and Petersburg railroad company, and the Petersburg railroad company, be and they are hereby authorized to construct and maintain along the line of their respective railroads, a Line of Morse's Electro Magnetic Telegraph, or any other Electric Telegraph, having first acquired the legal right to use the same, for their own use and that of the public, making reasonable charges on messages or intelligence transmitted thereby.

*Be it further enacted,* That it shall be lawful for Samuel F. R. Morse, and his associates, who have or may become owners of Morse's Electro Magnetic Telegraph, to put up and maintain a line of said Telegraph, or of any other Telegraph, having first acquired the legal right to use it, from Washington city through Fredericksburg, Richmond and Petersburg, to the limits of North Carolina, upon the ground of the said railroad companies as far as they extend, having first obtained the consent of those companies, making reasonable charges on messages or intelligence transmitted thereby; and they shall have the rights, powers and privileges of other corporate bodies, under the name and style of the "Washington and New Orleans Telegraph Company," for the purpose of building and managing said line of Telegraph.

*Be it further enacted,* That the inventors of any system of Telegraph whatsoever, or those who may have acquired a legal conveyance thereof, shall have a right to construct the same, for the accommodation of the people of this commonwealth, along the common roads, streets and public works, and over the waters thereof; *Provided,* that they shall not obstruct the ordinary use of such roads, streets public works and waters; *Provided,* also, that inventors who claim this privilege, and their assignees, shall first produce the proof of their inventions, or the legal conveyances under which they claim, to the Board of Public Works.

*Be it further enacted,* Any agent or agents employed in working any line of Telegraph constructed under the authority of this act, and any other person or persons who may be instrumental in conveying false intelligence thereby, with intent to defraud or injure any one, knowing the same to be false, or who may, from corrupt or improper motives, withhold or delay the transmission of messages or intelligence for which the customary charges have been paid or tendered—and any persons who shall wilfully injure, break or destroy any of the posts or wires of any such lines of Telegraph, shall be deemed guilty of a misdemeanor at common law, and shall be punished as for a misdemeanor.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1v

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Ewing, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 2v19 1v 445 Paterson, N. J., or 60 Wall street, N. York.

### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

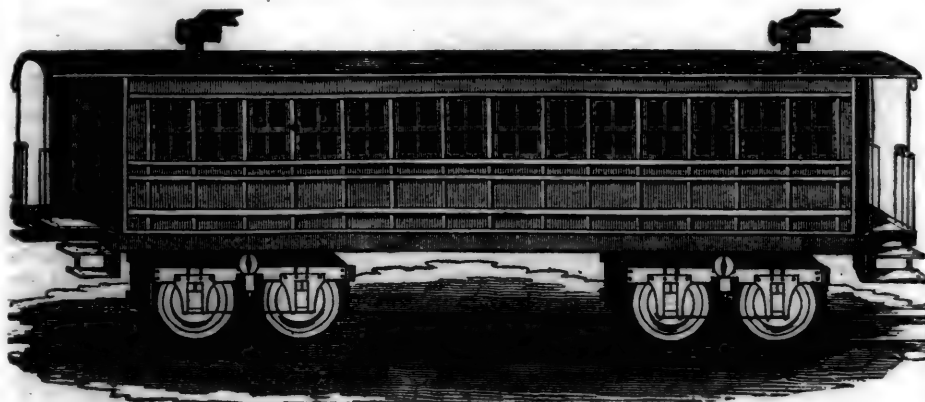
••• The letters in the figures refer to the article given in the Journal of June, 1844.

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# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, - MASS.

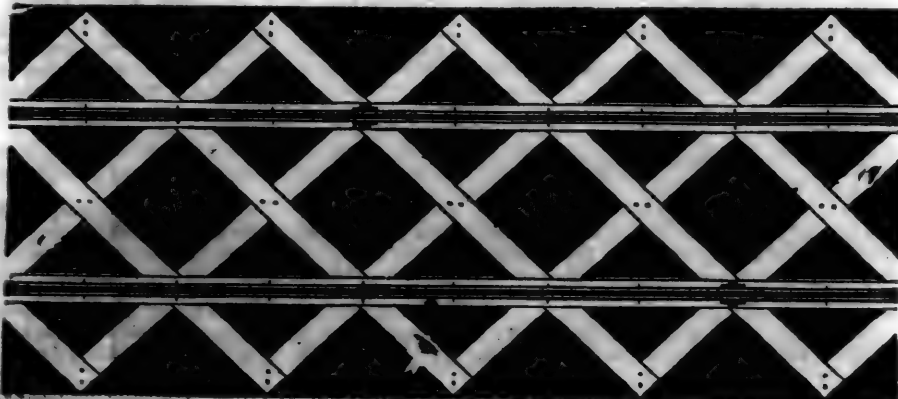


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs., at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

331

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

98 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\*

Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

West Troy, May 12, 1847.

ANDREW MENELY.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

121f

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

1y48

MURDOCK, LEAVITT & CO.,  
Agents.  
77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

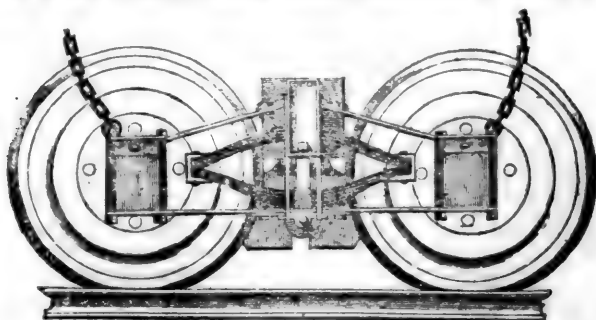
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

32 1y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

ber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LES. OZ.	INCH.	LES. OZ.		LES.	INCH.	Tons.
11	4	13 5	10	24 -		50	15-16	20
13	3	9 3	8	16 -		27	11-16	13
14	3	6 11	7	12 8		17	9-16	10
15	2	5 2	6	9 4		13	1-3	7
16	2	4 3	6	8 8		10	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors; and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by  
DAVIS, BROOKS & CO.,  
Jan. 2. [1lf] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Supt of Power.  
I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

Jersey City, November 4, 1845.

[Signed.] T. L. SMITH,

N. Jersey Railroad and Transp. Co.  
This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt Motive Power.

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
ja45 Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined H. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE SUBSCRIBER'S** New Rail Iron Mill at Phoenixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of October next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

**PIG IRON.**—They are also receiving weekly 150 to 200 tons of No. 1 Phoenix Foundry Iron, well adapted for light castings.

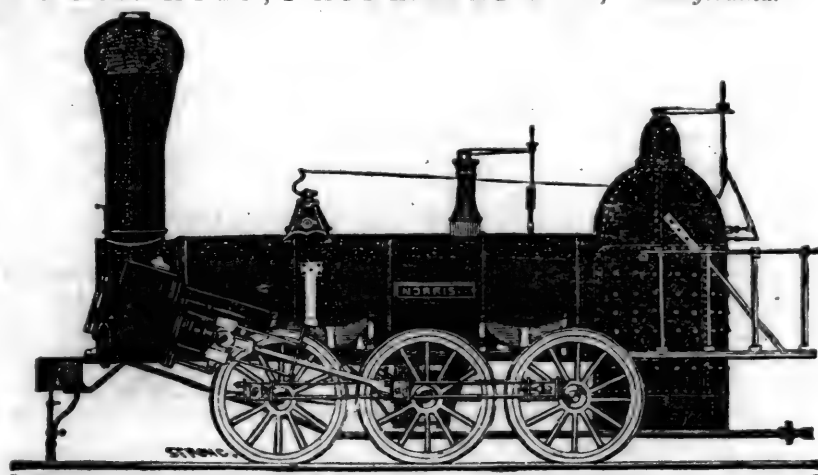
REEVES, BUCK & CO.,

45 North Water St., Philadelphia,  
or by their Agent, ROBT. NICHOLS,  
79 Water St., New York.



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va. }  
J. R. Anderson, Tredegar Iron Works, Richmond, Va. }  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn. }  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R. }  
New Jersey Malleable Iron Co., Newark N. J. }  
Gardiner, Harrison & Co. Newark, N. J. }  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON 4 South Front St., Philadelphia. 28tf

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**WO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS

PASCAL IRON WORKS.

## WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**T**WO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

## PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL &amp; CO.

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,  
1y

**THE SUBSCRIBER IS PREPARED TO**  
execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1y10 New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
4tf Philadelphia, Pa.

**TO RAILROAD CONTRACTORS.—PAT-**  
erson and Ramapo Railroad.—Proposals will be received until the 30th day of June, inst., for the Grading, Masonry and Bridging that part of the Paterson and Ramapo Railroad, extending from the north side of the Passaic river to Ramapo, a distance of about 14 miles.

Maps, Profiles and Specifications may be found at the Engineer's Office, Paterson, where every necessary information will be given.  
2c25• J. W. ALLEN, Engineer.

**NOTICE TO CONTRACTORS.—ANDROS-**  
COGIN AND KENNEBEC RAILROAD. Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Androscoggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June.

Satisfactory surities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.  
Railroad Office, Lewiston, May 8, 1847. 4c21

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10c1f

**RAILWAY IRON.—DAVIS, BROOKS**  
& Co., No. 68 Broad Street, have now in port on Ship-board, 900 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.  
46tf

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 30 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fittings.  
11c

**NEW YORK AND ERIE RAILROAD LINE**  
SUMMER ARRANGEMENT. For passen-

gers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars, to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

**WESTERN RAILROAD.—ON AND AF-**  
ter Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany.

Springfield at 8 1-2 a. m. and 1 1-3 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a. m. and 7 p. m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a. m., 1 and 3 p. m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.  
C. A. SEAD, Agent, 27 State street, Boston.

**BOSTON AND PROVIDENCE RAIL-**  
road. Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston every day, except Sunday, at 5 o'clock p. m.

Accommodation Trains—leave Boston at 7 and 10½ a. m. and 4 p. m., and Providence at 7½ and 10½ a. m. and 4½ p. m.

Dedham trains, leave Boston at 8 a. m., 12½, 3½, 6½ and 9 p. m., Leave Dedham at 7 and 9½ a. m. and 2½, 5½ and 8 p. m.

Stoughton trains, leave Boston at 11½ a. m. and 5½ p. m. Leave Stoughton at 7 10 a. m. and 3½ p. m.

All baggage at the risk of the owners thereof.  
25tf W. RAYMOND LEE, Sup't.

**NEW YORK & HARLEM RAILROAD**  
CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars

will run as follows, until further notice. Up trains will leave the City Hall for—Yorkville, Harlem and Morrisana at 6, 8 and 11 a. m., 2, 2 30, 5 and 7 p. m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a. m., 4 and 5 30 p. m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a. m. and 4 p. m.—Freight train at 1 p. m.

Returning to New York, will leave—Morrisiana and Harlem, 7, 8 20 and 9 a. m., 1, 3, 4 30, 6, 6 28 and 8 p. m.

Fordham, 8 08 and 9 15 a. m., 1 20 and 6 15 p. m.

Williams Bridge, 8 and 9 08 a. m., 1 10, 6 08 p. m.

Tuckahoe, 7 38 and 8 25 a. m., 12 55 and 5 52 p. m.

White Plains, 7 10 and 8 35 a. m., 12 50, 5 35 p. m.

Pleasantville, 8 15 a. m. and 5 15 p. m.

Newcastle, 8 a. m. and 5 p. m.

Mechanicsville, 7 48 a. m. and 4. 48 p. m.

Croton Falls, 7 30 a. m. and 4 30 p. m. Freight train at 10 a. m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a. m. and City Hall 1 p. m.

Returning, leave Croton Falls 10 a. m. and 9½ p. m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a. m., 4 p. m.

Croton Falls for City Hall, 7 30 a. m., 4 30 p. m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a. m. and 5 30 p. m.

White Plains for City Hall, 7 10 and 8 35 a. m., 12 30 and 5 35 p. m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c., to White Plains 50c. 25tf

**LONG ISLAND RAILROAD COMPANY.**  
Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a. m. for Farmingdale, 1 1-2 p. m. for Greenport, at 4 p. m. for Farmingdale.

Leave Farmingdale at 7 a. m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a. m. for Brooklyn.

Leave Jamaica at 8 a. m. for Brooklyn, at 1 p. m. do., at 4½ p. m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p. m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a. m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a. m. for Brooklyn—leave Brooklyn at 6 p. m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a. m. for Farmingdale; leave Farmingdale at 4 p. m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a. m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

25tf DAVID S. IVES, Sup't.

**PATERSON RAILROAD**  
Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at New York at

8 o'clock a. m. 9½ o'clock a. m.

11½ o'clock a. m. 12 1-4 o'clock p. m.

4 o'clock p. m. 5½ o'clock p. m.

On Sunday,

8 o'clock a. m. 9½ o'clock a. m.

4 o'clock p. m. 5½ o'clock p. m.  
Office 75 Courtlandt St.



**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....	9 a.m. and 3½ p.m.
Arrives at.....	9 a.m. and 6¼ p.m.
Leaves York at.....	5 a.m. and 3 p.m.
Arrives at.....	12½ p.m. and 8 p.m.
Leaves York for Columbia at.....	1½ p.m. and 8 a.m.
Leaves Columbia for York at.....	8 a.m. and 2 p.m.

## FARE.

Fare to York.....	\$1 50
" Wrightsville.....	2 00
" Columbia.....	2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at..... 5½ p.m.  
Returning, leaves Owning's Mills at..... 7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.  
31 ly

**BOSTON AND MAINE RAILROAD.**

Upper Route, to Portland and the East.  
SUMMER ARRANGEMENT,  
April 1, 1847.

**PORTLAND TRAINS.**

Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**

Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31

CHAS. MINOT, Sup't.

**NORWICH AND WORCESTER RAILROAD.**

Summer Arrangement. Change of Hours. Commencing on Wednesday, April 31, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a. m., and 4½ p. m. Leave Worcester, at 6½ a. m., and 4½ p. m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 31 ly

J. W. STOWELL, Sup't

**PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.**

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and	\$3 00
" " Reading, 58		2 25 and	1 90
" " Pottsville " 34		1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.  
Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.**

On and after April 1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.

**NEW YORK AND PHILADELPHIA RAILROAD line—direct.**

Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line..... 9 o'clock a.m.  
Mail pilot line..... 4 " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars..... \$4 00  
Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

254f

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 64 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon..... \$1 00  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

474f W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Piusburg. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 39 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 313y1

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9, from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100 lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$9 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.**—A Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50 Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to be different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent. 1y95

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.**

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga and Dalton.	Between Charleston, Oothcaloga and Dalton.
		260 miles.	386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hoghead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00

" " " Richmond..... 6 60  
For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOCOTON & FALLS, Agents. 1y14

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.  
The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the Franklin House, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)  
J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)  
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)  
ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)  
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)  
NORRIS, BROTHERS, Philadelphia Pa. (See adv.)  
FRENCH & BAIRD, Philadelphia. (See Adv.)  
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)  
ROSS WINANS, Baltimore, Md.  
CYRUS ALGER & Co., South Boston Iron Co.  
SETH ADAMS, Engineer, South Boston.  
STILLMAN, ALLEN & Co., N. Y.  
JAS. P. ALLAIRE, N. Y.  
PHOENIX FOUNDRY, N. Y.  
ANDREW MENEELY, West Troy.  
JOHN F. STARR, Philadelphia, Pa.  
MERRICK & TOWNE, do.  
HINKLEY & DRURY, Boston.  
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,  
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 26]

SATURDAY, JUNE 26, 1847.

[WHOLE No. 575, VOL. XX.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, June 26, 1847.

Will Subscribers to the Journal—who have not *already done so*—please remit by mail the amount due? The amount to each is a trifle—but to us, in the aggregate—a very important matter, and an early remittance from each will greatly aid and oblige us.

CONTRACTORS will find the following a "Notice," of interest to them, and we hope they will avail themselves of it to their profit.

**MICHIGAN CENTRAL RAILROAD.—NOTICE TO CONTRACTORS.**—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of Col. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors.

J. W. BROOKS, Supt.  
Michigan Central Railroad Office,  
6226 Detroit, June 17, 1847. }

## To Contractors.—Pennsylvania Railroad.

We would call the attention of Contractors to the following advertisement of the Central Pennsylvania Railroad. This is a work of an extent and importance that renders this notice well worthy the attention of enterprising contractors in every part of the country; and we shall be disappointed if the competition is not spirited and profitable to the company.

**NOTICE TO CONTRACTORS.—SEALED** Proposals will be received until Wednesday, July 15th, in the Borough of Harrisburg, and until Wednesday, July 23d, in the city of Pittsburg, at 10 o'clock A.M., at the Office of the Engineers, for the Grading and Masonry upon fifteen miles of the Pennsylvania Railroad, extending west from Harrisburg, and fifteen miles of said Railroad, extending east from Pittsburg. The grading will include

very heavy work, and the amount of Masonry, including the Piers of Abutments of the Bridges across the Susquehanna, three-quarters of a mile in length, will be unusually large. Plans and specifications of the work can be seen at the Engineer's office in each place, for ten days previous to the time appointed for receiving the bids. Any further information can be had upon application to the Chief or Associate Engineers.

S. V. MERRICK, President.

## Railroads to the Lackawana Coal Region.

As the demand for anthracite coal increases, new avenues will be required to get it to market. In twenty-six years the amount of anthracite coal sent to market has increased from 345 tons—or from *one ton per day*, to two million seventy-seven thousand, two hundred and eighty tons, or 5,700 tons per day, and still the use of this kind of fuel has but just commenced, therefore it is necessary that timely arrangements should be made to ensure a regular and constant supply for the rapidly increasing demand, and especially for the supply of those regions where it is not yet introduced.

The early construction of the New York and Erie Railroad, together with the Lackawana Railroad, connecting the former with the coal region, will open a medium of reaching the interior of New York at Utica, Syracuse, and westward, as well as another outlet to the Hudson river and eastward of it.

The following statement in relation to the importance and value of this proposed work has been furnished us by a gentleman perfectly familiar with the Lackawana coal region, and the means of supplying the demand for coal in this country, in whose opinions we have great confidence, therefore we give it a prominent place in the Journal, and ask for it the favorable consideration of all who are interested in the subject.

## The Lackawana Railroad Company.

This company was chartered many years ago under provisions of the most salutary character, by the Governor of Pennsylvania, agreeably to an act of the Legislature of that State.

Hitherto, from the state of the money market, and a want of connection with other channels of communication, nothing has been done—except to procure its charter and organize the company, and to obtain such legislation from time to time, as to make improvements on the original act.

As it now stands it has nearly ten years to commence its operations, its duration is unlimited, and it connects with the New York and Erie railroad at Lanesboro, its northern terminus.

Under these favorable circumstances it presents to capitalists one of the most feasible projects for the investment of funds that we know of.

It would be a waste of time to give an elaborate statement of the Lackawana coal region, the excellence of its anthracite, or its inexhaustible quantity. These facts are too well known to require elucidation.

The Delaware and Hudson canal company have established the reputation of the Lackawana coal valley. Carbondale is as well known as Pottsville or Mauch Chunk. This prosperous company last year carried to market 318,000 tons of coal, and will carry this year 400,000 tons. Its clear profits last year were over twenty per cent. on the capital paid in, and the value of its stock in market is 180 per cent.

The Lackawana railroad company has a choice of as valuable coal lands as those owned by the Delaware and Hudson company, and in every particular can be as well calculated for the command of an extensive trade in coal as that company. Skillfully directed, and with a like attention to economy, no good reason can be assigned why its financial operations will not be equally prosperous and productive.

It has the privilege of holding two thousand acres of coal lands, a privilege which is inestimable, inasmuch as no efforts of late years have been able to obtain it—the present Governor of Pennsylvania having vetoed every bill that embraced the "coal clause."

In some points the Lackawana railroad will have the advantage over the Delaware and Hudson company. The former can reach the market by railroad communication alone, and with *uniformity of gauge*. Cars, loaded at the mines, may deposit their freight in the market, saving transhipment and waste—while the latter is compelled to discharge its coal at Honesdale from cars into boats, and at Rondout from boats into barges.

A continuous railroad has an advantage over any work composed of railroad and canal—the first may be used to advantage the whole year, the latter is impeded by frost and snow. Even in regard to expense of transportation, the Reading railroad carries coal as cheap as the Schuylkill navigation, and the Boston and Albany road has carried flour 20 per ct. cheaper than the Erie canal.

The Lackawana railroad has two leading objects in view.





Judson railroad company, that the within report has been prepared by him from the books of the said company, and is correct to the best of his knowledge and belief.

EZRA FOSTER, JR.

Sworn to before me this 2d day of February, 1847.

H. Q. LANSING,  
Commissioner of Deeds.

#### Richmond and Ohio Railroad.

Continued from page 391.

In order to arrive at just conclusions upon this important subject, we may safely examine the influences of similar works upon other States of the Union, and yet even in this view there are some weighty considerations affecting the present condition of Virginia, which will conspire to give her a more rapid, onward career, when once she becomes enlisted in works of internal improvements.

Twenty years ago, when the Northern States entered upon their work of opening artificial channels of communication with the west, the mighty sources of that wonderful region were entirely undeveloped: scarcely a bushel of grain, not a barrel of flour or pork, was ready for transportation to an eastern market. There was then, indeed, the same illimitable valley of unsurpassing fertility spread out to the view of those who entered as pioneers upon this grand enterprise. But they were regarded as enthusiasts, and their predictions of the future greatness of that vast valley considered as idle dreams. While Massachusetts, New York, Pennsylvania, and Maryland have been making rapid advances in wealth and commerce, the State of Virginia has remained nearly stationary. And now, as she is about to enter upon a career of internal improvements, the broad west is already occupied by millions of inhabitants, and their surplus productions are losing half their value for the want of greater facilities to eastern markets. In 1843, their productions amounted to the vast sum of \$220,000,000, and at the present time exceed \$300,000,000. This immense valley, containing an area of 1,211,000 square miles, of the most fertile land on the globe, and a capacity to sustain 100,000,000 inhabitants, will tax all "the outlets to the Atlantic which have been or can be opened to their utmost capacity for the exportation of its surplus produce and the importation of its merchandise. Shall Virginia, then, falter in this great enterprise? Occupying, as she does, a central position in the Republic—with her broad Chesapeake indenting her eastern limits, with excellent harbors, with all the natural elements of greatness in abundance, and with this great central trunk opening into the Ohio, and there connecting with more than 20,000 miles of internal communication, webbing over the whole west—shall she not relieve herself from colonial dependence upon her more enterprising neighbors, and build up within her own border one or more great commercial towns? In accomplishing this great design, she has only to open this central channel, and the vast tide of business already accumulated upon her western borders, will flow through her territory at all seasons of the year. That this grand railway would be the most natural outlet for the Ohio valley below Guyandotte,

or even the Great Kanawha, and for the valleys of the Missouri and the Upper Mississippi, in so far as their productions would seek the northern and eastern markets, will scarcely admit of a doubt. As has been before observed, the mouth of the Chesapeake is the most commanding site on the Atlantic coast for a great commercial centre, and it cannot be necessary to labor the argument that the opening of this great work would be a brilliant era in the history of the Commonwealth. In this connection it may be well to glance at the effects of similar improvements in other states. In adverting to New York, we cannot do better than to adopt the language of an able article in Hunt's Merchants' Magazine, vol. 13, page 54: "The region throughout the entire line of the canal, was indeed advanced in value to a great extent, through the agency of this great work. Furnishing a direct line of communication to the great metropolis of the country, the city of New York, it brought the agricultural resources of that region of country into a most valuable market, and at the same time furnished a cheap and safe line of transportation from the Atlantic seaboard to the populous towns and thriving settlements which were beginning to spring up throughout the west. Villages also began to arise along the line of the canal; and became the depots of rapidly increasing and prosperous trade, that portion of the interior of New York which had before spread out tracts of unsettled wilderness was gradually subdued to agricultural industry, as the motives for cultivation increased, by the opening of lines of transportation to new markets."

The value of the improved lands of New York in 1825, on the completion of the Erie Canal, was \$174,024,175. In 1835, ten years thereafter, that value had arisen to \$241,385,050, exhibiting an income in value of \$72,361,475.

The increase of the city of New York in commerce was even more rapid.

In 1827 the duties on imports paid in New York, were about 67 per cent, and in 1833 about 82 per cent. of the total paid in the United States. In 1825 the grand total tonnage which entered and cleared from the port of New York from and to foreign ports, was 543,616. In 1835 the same was 834,056, showing an income of tonnage in ten years of 290,444.

In 1825 the population of New York was 166,086.

In 1835 the city numbered 270,089, having increased 104,003 in ten years.

In 1825 the total valuation of real and personal estate in the city was \$101,160,046. In 1835 the same was \$218,723,703. In 1844 it was \$235,960,047. Increase in ten years, \$117,663,637. In 14 years, \$134,800,001. That her system of canals and railroads mainly produced these results, is beyond question. In Massachusetts the proofs are no less convincing. In 1830 the total valuation of real and personal estate in the city of Boston, was as follows: Real estate, \$36,960,000. Personal estate, \$22,626,000. Total, \$59,586,000. In 1840,

real estate \$60,424,200. Personal estate, \$34,157,400. Total, \$94,581,600. In 1845, real estate, \$81,991,400. Personal, \$53,357,300. Total \$135,348,700. Increase in fifteen years, \$76,362,700!! There is a remarkable fact connected with the valuation of estate in New York and Boston. During a part of the period from 1841 to 1844, while New York was reposing securely on her natural advantages and her magnificent system of canals, her more vigilant rival, bending all her efforts in extending her railroad system, made such an inroad upon the prosperity of New York, that during these three years, her real and personal property actually diminished in value \$15,234,873, while that of Boston increased \$20,343,700. This is a most convincing argument in favor of the superiority of railroads over canals in promoting the prosperity of commercial cities.

In 1830 the population of Boston was 43,298. In 1840 it was 93,383, and at this time is probably not less than 120,000.

But this does not, in fact, exhibit the real increase of her population which may be fairly attributed to her grand system of railroads.

Lowell and other prosperous cities in her immediate vicinity have been built up mainly by the capital and enterprise of Boston. Indeed the whole state has felt the beneficial effects of her railroads, and sustains at this time a most honorable rank in commerce, wealth, and refinement in the Union. With such an example before the people of Virginia, they cannot remain indifferent to their duty to the Commonwealth.

That Massachusetts, with a territory about one-ninth as large as Virginia, and in natural fertility so far inferior, should yet so far exceed her in commerce, enterprise, and comparative wealth, is too humiliating to the pride of the Old Dominion.

In relation to Pennsylvania, the committee would adopt the language of an able writer in Hunt's Merchant's Magazine, Vol. 13, page 138. "The credit of the public works has concurred with the credit of the state, and the voice of opposition and complaint has been drowned by the music of the boatman's horn on the canals, and hushed into silence by the rumbling of the wheels of thousands of cars upon our railways—the sound of forge hammers—the rattling of rolling mills—the roar of furnaces—and the puffing of steam engines in every section of the Commonwealth. If these state works had never yielded any revenue over the annual expenses, the people of Pennsylvania would still have been gainers by their construction at the public expense. They are enduring monuments of honor to those who planned them; and by their energy effected their completion. The permanent value they have given to property—the vast resources they are the cause of developing—the capital and population which they are bringing into the state—the enterprise awakened and dormant energies aroused. The increased price of every thing sent to market, and the amount saved in the reduced price of every thing purchased from the sea board,

are worth many times more to the whole people than the amount of state taxes, required to pay the interest on their cost."

Statistical arguments might be multiplied to show the wonderful influence of great lines of internal improvements upon the wealth, population, and commercial prosperity of Baltimore and Charleston. But it is deemed superfluous to pursue this subject further. Enough has been shown to justify the argument that the construction of the Richmond and Ohio Railroad would open a new era in the history of her sister states. "In her central position in the Union—in her mild and delightful climate—in her noble Chesapeake and majestic rivers—in her inexhaustible resources of mineral wealth, and her great manufacturing advantages, no state in the Union possesses so many of the elements of greatness and power as Virginia. These elements, however, can only be made subservient to her prosperity by the union of her whole people; and nothing will so strongly cement them in feeling and interest as the construction of this great work. Again, the geographical features of Virginia are such that this great work would cut her valleys at right angles, through which, by means of lateral roads easily constructed, the wealth and resources of the whole interior would naturally flow, diffusing, by means of this central trunk, life and energy through every part of the state." [See *Hunt's Mer. Mag.*, vol. 13, page 462.]

It may be proper here to advert to several facts and arguments, to show the peculiar advantages of this great central railway through Virginia for the trade and travel of the west; for, however great may be the internal trade of the several states, which have already entered the lists as competitors in the noble enterprise of internal improvements, it is evident that the business of this wonderful region is the grand prize for which they are all contending. In the first place, it is an important fact in the commercial statistics of New Orleans, that setting aside her great staples, cotton and sugar, much the greater portion of the interior trade comes down from the upper country, in the winter season. It is moreover true, that nearly one-half of her exports of country produce is derived from Cincinnati alone. The inference in these facts is clear, not only that Cincinnati is the great centre from which New Orleans draws a large proportion of her trade, and that this trade flows down the river, while the northern outlets are obstructed with ice and snow; but also, that if an outlet were opened from Cincinnati, free from these obstructions, and affording a more desirable transit for her produce to tide waters, a large portion of the trade which now goes to New Orleans from Cincinnati would take an eastern direction. It cannot be doubted that the Richmond and Ohio Railroad would soon become such an outlet, and the most powerful competitor with New Orleans for the trade of the west. Richmond and Norfolk would be safer ports for the storage and transshipment of western produce to all foreign ports, than New Orleans.

"The climate and high charges of New Orleans, and the injury done to articles liable to damage from heat, both at that place and in their transit through the gulf, constitute other strong grounds of preference in favor of an eastern route." [See *Sup. Rep. Jas. R. K. Co.*, for 1846, page 646.]

"It is our opinion that the following articles would pay all the expenses of transportation named by you, and would net the grower more in Richmond than if taken to New Orleans free of charge, say tobacco, flour, pork, bacon, lard, butter, cheese, etc., for the following reasons. Independent of freight down the river to New Orleans, these articles are all materially injured by passing through a warm and humid climate. At New Orleans they have to pay exorbitant rates of drayage, storage, fire insurance and commission, and when shipped from thence to other markets, are subject to a rate of freight at times 50 per cent. higher than from James River." (*Idem*, page 647.) Such is the opinion of merchants of high responsibility in the city of Richmond. For these substantial reasons it is certain that a vast proportion of the trade of New Orleans derived from the "Father of waters," would be directed to our own Atlantic cities through this great central line. It is pertinent to this view of the case to notice the fact, that the whole extent of the interior navigation afforded by the Mississippi and its numerous tributaries, is estimated at 20,000 miles. Of this probably two-thirds lie above the Ohio River, and the business arising in that vast country would strongly tend to the Atlantic markets, and come, therefore, more or less under the influence of the Virginia line. And this view is more important from the fact, that this immense extent of water communication opens up into a broad extent of country, whose great staples, for the reasons above stated, will most naturally seek the northern and eastern markets in preference to New Orleans. In the next place it is worthy of remark in this connection, as showing the advantages of this line over its northern rivals as a great outlet for the products of the west, that a vast amount of these products are exported to the West Indies and South America, as well as to Europe, and that this export trade will probably increase to an extent of which at present no one can form any conception.

Now then, if this great thoroughfare were opened, so as to give assurance of a quick and cheap transit at all seasons of the year for the products of the west, vast quantities which are now sent to the lake ports would be collected at St. Louis and Cincinnati, and transported over the Virginia line. That this would be the case in an eminent degree, so far as the Queen City is concerned, cannot be doubted. She is already the centre of an immense produce business, and must become more and more the business centre of the rich agricultural country around her. For the outlet of her immense traffic in grain, flour, pork, and other staples of the west, the Richmond and Ohio Railroad would open the most desirable channel to tide water. To

aid in the estimation of the importance of this export business of the west, let us look for a moment at some statistical facts. On reference again to the same excellent work, *Hunt's Merchants' Magazine*, vol. 13, page 376, a valuable table will be found, which shows that for the year ending June 30, 1844, the total exports from the United States to other American nations, amounted to \$20,892,682; of this amount only \$1,202,418 was cotton, and \$44,678 was sugar—in all \$1,247,096 of the products of the south, leaving \$10,645,586 of produce from the northern and western portions of the Republic. This amount, though large, is but "a drop of the bucket" compared with what may soon be expected from the almost unlimited extent and amazing productiveness of the great valley of the west. Now then, since, as has been before observed, the Chesapeake offers the most feasible point as a great commercial centre for the west, the conclusion is irresistible, that when this great line shall have been opened, a vast proportion of this export trade of the west must seek an outlet through it to Richmond and Norfolk. And especially would that portion of this rapidly increasing trade which would spring up with the South American nations and the West Indies, flow through this channel from Cincinnati, rather than make the more circuitous and expensive routes through any of the more northern cities. Large quantities of flour would seek this outlet for foreign markets, as it would be exported from Richmond in better condition than from New Orleans, and also much earlier in the spring and later in the autumn than from the northern market. Immense quantities of wheat from Ohio, Indiana, and Illinois would be sent to Richmond, to be there manufactured for the foreign market. This export trade of western produce would of itself build up Richmond and Norfolk, and give them the rank of great commercial cities. This opinion is corroborated by that of Mr. Roebling. "This road," says he, "will form the most direct route to Cincinnati, and if extended to Norfolk, may raise the latter place to one of the first seaports on the Atlantic coast."

Indeed, who could doubt that if Richmond and Norfolk were now cities, each containing 40,000 inhabitants, they would at once, with the Richmond and Ohio Railroad opening to the granaries of the west, become powerful competitors with New York, Boston, Philadelphia and Baltimore, for the western trade, and who can entertain a doubt, that this great road being opened, they would soon contain that population?

On recurring to the population of Boston hereinbefore stated, it will be seen, that if Richmond should increase in the same ratio with that city, allowing Richmond at this time 25,000 inhabitants, in ten years she would contain in round numbers 54,000. Again, assuming New York as a basis, and giving to Richmond the same rate of increase, her population in ten years would be 41,000. Considering the advantages of Richmond for manufacturing purposes, and the vast influx of business which this great channel would



occasion, it is highly probable that her increase of population would even be in a greater ratio than that of New York and Boston. Taking all things into consideration, no city in the United States combines so many advantages as Richmond would possess upon the completion of this improvement. With the grand falls of James River on the one hand, and the tide water upon the other, and with the increasing tide of business pouring into her lap from the west, bringing to her the raw material and carrying west her fabrics, she could not fail of accomplishing her high destiny. In this connection it is worthy of consideration that New Orleans can never become a great manufacturing city, and this advantage of Richmond, super-added to the other attractions of this Virginia line, could not fail to draw largely upon the western business, and rapidly accelerate the wealth and prosperity of Richmond. "In time also of war with any European power, this railway would be of the highest importance as a great military road."

No other line of intercommunication could be so secure and central between the Atlantic cities and the Mississippi valley. Lying wholly within our own territory and passing through the geographical centre of the states east of the Mississippi, its eastern terminus would connect with the Chesapeake the safest and best harbor for our fleets. Its western terminus would open into the great agricultural regions of the west, where abundant naval and military stores could be obtained at all seasons of the year—and our armies and munitions of war transported each way with perfect security." *Hunt's Mer. Mag.*, vol. 15, page 276.

In addition to all these general considerations, showing the importance of the Richmond and Ohio Railroad, and its relative advantages as compared with the great rival lines of the country which stretch across the Alleghenies, it is proposed briefly to refer to other subjects more immediately connected with its influence, affecting the internal prosperity of the commonwealth. In doing this, for the sake of avoiding confusion, it may be well to consider the influence of this great central railway as follows: 1st. Its general effect upon the real and personal estate of the commonwealth. 2nd. Upon the products of the forest. 3rd. Upon the products of the mines. 4th. Upon the products of the field, and 5th. Upon the product of the workshops.

First, the effects of this road upon the real and personal property of the state.

Upon this head no certain dates are at hand. Referring, however, to the statistics already given on this subject in relation to New York and Massachusetts, it will be evident that in this respect Virginia would even excel those states.

The increase of improved lands in New York, in ten years after the completion of the Erie Canal, was, as has been already shown,

\$72,361,475.

Of real and personal estate in the city of New York,

117,563,637.

Of real and personal estate in

Boston from 1830 to 1845, 76,372,700.

Now then, when we consider what immense bodies of agricultural lands are now inaccessible between parallel ranges of the mountains which intersect the states from north-west to south west, and which would, for agricultural purposes, if accessible, be preferred on many accounts to lands more remote in the west, we can scarcely overrate the increased valuation of the real estate of the commonwealth which would follow upon the opening of this great road. There are millions of acres of these lands which would soon be converted into good stock and grain farms, but which are now almost valueless. Vast bodies of these lands are now entered for taxation at from ten to fifteen cents per acre, and upon that valuation pay only ten cents on each hundred dollars. When these waste lands are taken up, the commonwealth would derive from their increased value an immense revenue.

In point of original fertility and productiveness of soil, the territory of Virginia, taken as a whole, is not probably exceeded by that of any other of the "Atlantic states," and it is estimated that 50,000 square miles out of her whole area of 66,620, after making a liberal allowance for waste lands, are capable of sustaining a mean distributive population equal in number to that which occupies any of the best inhabited of its existing counties: (for example, Henrico including Richmond,) such a value would give Virginia more than 5,000,000 of inhabitants, a number far below the population she could support." (*Martin's Gaz.* p. 22.) This estimation is but a little higher than the present population of Massachusetts. From the geographical features of the state, it is obvious that this central improvement, more than any other, would open the whole territory and cause a vast increase of her population. New York, since she entered upon her great works of internal improvements, has nearly tripled her population, and it is highly probable, that, had the Old Dominion entered upon the same policy with equal zeal, she would at this time have numbered at least 3,000,000 inhabitants. It needs no argument to show that such an increase of her population would add more than 100,000,000 to the valuation of her real estate!

The effect of this great central work upon the product of the forest, is apparent from what has been already said in relation to the increased value of the real estate of the Commonwealth. "In the interior and western portions of the state are extensive forests of pine, oak, white wood, cherry, walnut, and other valuable timber, which would find a ready market by means of this road, and here it might be maintained, even admitting the general arguments urged by the advocates of canals in preference to railroads, for the transportation of lumber, that in this respect the Richmond and Ohio Railroad would seem to form an exception to their objection. The vast quantities of this valuable timber, which, in the form of planks, ship timber, staves, etc., would be transported to market, are found chiefly in the interior of the state.

From this section, coming east, the whole distance would be over an easy descending grade to Buchanan, where the road would meet the canal. This heavy trade would probably, to a great extent, be carried on thence upon the canal to tide water. Such transshipment would constitute no objection, for from this point eastward, the road would be fully occupied in the transit of light merchandise and passengers. Again, on the other side of the mountains, all the timber which would be transported, would find a ready cash market in the valley of the Kanawha, at the great salt works, and down the Ohio. In fact, the whole of this heavy trade, would be upon the descending grades upon each side of the Allegheny, and beyond question, could be taken over this central portion of the way, east and west, from the summit level, at a less expense than along a canal over the same region, considering the great delay and expense occasioned by the necessary lockage on this part of the route. It is impossible to arrive accurately at the value of the proceeds of the forest in Virginia. Upon the opening of this great line in 1810, the total value of these was \$616,569, and of those of the state of Maine for the same year, \$1,840,231. Now considering the vast extent of Virginia, and the immense quantities of lumber, ashes, ginseng, etc., which would find a market along this line, it would seem to be within bounds to estimate the whole value of the products at \$2,000,000 per annum for many years succeeding its completion.

The mineral wealth of the Commonwealth is inexhaustible, and the products of her mines would therefore constitute a very important part of the interior trade of the state upon this road. Iron, lime, coal, and salt are the principal of her mineral productions, and all these could be conveniently transported over the road. No state in the Union is richer in her mineral wealth than Virginia, and it is remarkable that her extensive beds of iron, limestone and coal, are found along the line of this central improvement. The fact that lime and iron are found in vast quantities along this line is one of great importance in the production of iron. Besides, this iron is of a superior quality. "It seems to be well ascertained by well authenticated experiments and trials at Richmond and at the north, that the iron coming from some of the mines in the valley possess a degree of tenacity unequalled by any other iron in America. A specimen of wire made of iron prepared at one of the establishments in this region, recently took the premiums both at the Franklin Institute in Philadelphia, and at the National Institute in New York, having borne a much greater tension than any other specimen exhibited. It is understood that the general government has declared its decided preference for the chain cables of the Virginia iron at the Tredegar Works, in the city of Richmond, over all the others that have been tried. It appears also that the guns manufactured at the works here mentioned have furnished additional evidence of the extraordinary tenacity of our iron. The

trial gun in recent experiments standing seven of the trial charges, whilst the best gun ever before used in America stood only four!! [See *Sup. Rep. of Jas. R. R. Co.*, 1846, page 712.] Besides the presence of lime along the belt of country containing the deposits of this valuable iron ore, there is an abundant supply of wood and coal. From the same high authority above cited, it appears that in much of the ore found along this great railway, there is a peculiar quality which fits it for conversion into the finer kinds of steel. All these considerations justify the inference that Virginia is soon to equal Pennsylvania in the production of iron. In 1844 the quantity of iron shipped on the main line of her great central improvements was 135,006,982 lbs., and the quantity of anthracite coal sent to market in 1845, was 2,000,000 tons, yielding a return to the state of more than \$7,000,000, and the total amount of toll received upon all her state works for coal and iron in 1844, was \$222,500 17. These facts will enable us to form some idea of the immense coal and iron business which will spring up in Virginia upon the construction of her great central improvement. Inexhaustible deposits of bituminous coal of the finest quality, are found, both in the east and in the west, in the valley of the great Kanawha, and near the city of Richmond. This will be also a source of immense profit. In the article of bituminous coal, Virginia already rivals Pennsylvania. In 1840 the former raised 10,620,654 bushels, and the latter only 11,620,654. In the article of salt also, the great salines of Virginia are important. It is, however, probable that much the greater part of the Virginia salt will find its way down the Kanawha and Ohio rivers. Considerable quantities will, however, be sent eastward, to supply the market along the western slope of the mountains. The quantity of salt produced in the state, mostly, at the Kanawha salt works, was 1,745,918 bushels in 1840.

The agricultural products of Virginia will also vastly increase upon the opening of this road. In this respect the Commonwealth is destined to hold a high rank among the states of the Union. In several of the great agricultural staples of the country, she already stands pre-eminent. In 1840 her rank was as follows:

Of Tobacco, Virginia gathered,	lbs. 75,347,106
" Kentucky "	" 53,436,909
Of Flax and Hemp, Va. produced, tons,	25,594
" Missouri "	18,010
Of Indian Corn, Virginia "	bush. 34,577,591
" Tennessee "	" 44,987,188
Of Wheat, Virginia "	" 10,109,716
" Ohio "	" 16,571,661

(*Hunt's Mer. Mag.*, vol. 13, p. 286.)

The quantity of wool produced in this state in 1840, was 2,538,374 pounds, and yet the whole central western and southwestern portions better adapted to the productions of this great staple, both in quantity and quality, than any other part of the union—are yet comparatively an unbroken wilderness.

Besides these principal products of the field immense quantities of hay, hops, hides, beans, peas, butter and cheese would be transported along the line, and greatly augment its ton-

nage. Large droves of cattle and hogs are annually driven from western Virginia, and from Kentucky and Ohio, through Virginia to Richmond. These would be transported over this line at a great saving of time and money, and come into market in much better condition. This latter is an item of great importance. The practical working of the Reading railway for the transportation of coal, the general produce and coal business of the Baltimore and Ohio, and the transportation of immense droves of cattle over some of the Hungarian railroads, are arguments which outweigh all that can be urged by opposites against railroads for the transit of heavy freights. These statistics give some promise of what would be the agricultural productions of the commonwealth, when once aroused to the development of her resources.

The products of the workshops or the manufactures of Virginia are the last item to be considered in this connection; of these, some reasonable anticipations may be formed by reflecting upon the immense water power, both in the valley of the great Kanawha and coal rivers in the west, and the James river in the east, which last, in connection with Richmond, have already been adverted to. In other parts of the state are sites for large manufacturing cities of unrivalled advantages. Indeed no state exceeds Virginia in these respects. The falls of the James, the Potomac and the Kanawha, accessible as they are by navigable waters, are inferior to none in the world.

Besides her water power which would come into requisition, her vast fields of bituminous coal, furnish every facility for the production of steam power. Large manufacturing establishments would spring up along the whole line as well as in other parts of the state. No city on the Atlantic board could vie with Richmond in the production of iron, woollen and cotton fabrics. To none could the raw material be so cheaply transported. Inexhaustible beds of coal are in her immediate vicinity. The pig metal of the valley could be transported on the canals and railroad for a trifling expense to her foundries. The whole western and southwestern parts of the state, unsurpassed in any country in the world, for the production of wool of the finest quality, would be brought in a few hours to her mills. The cotton of the south could with a much less expense be brought to her factories, than those of Manchester and Lowell. So also in the west within the limits of the state, are all the elements of manufacturing wealth.

It can hardly be deemed extravagant to assert that the valleys of the Kanawha, the Cole, and the Guyandotte rivers will at no very distant day, become filled with the workshops of the great Mississippi valley. By the charter of the company it is restricted in the manufacture of flour, to the western section of the state. But no doubt flouring mills will there be erected for the manufacture of flour, from the wheat of western Virginia, as well as for large quantities from the granaries of the west. In this manufacture, Vir-

ginia already holds a high rank in the union for the excellence of her flour. This fact will induce the large farmers of the west to send their wheat to the mills along this line, to supply flour for foreign trade. The quantity of flour manufactured in Virginia in 1840 was 1,061,526 barrels. In 1840 the whole value of manufactures in Virginia was \$8,508,016. Such are a few statistical facts connected with the vast manufacturing resources of the Old Dominion, and they are presented, not so much to show what Virginia is, but to afford some presage of her future greatness. No railway in the union can be constructed through 400 miles of country, which in the variety and greatness of its resources, could furnish more business along its line than her own great central improvement, and besides as a great natural trunk, based upon the tide waters of the Atlantic, it opens in the west into the centre of a grand system, composed of canals and railways, of navigable lakes and rivers, unequalled in extent by any other on the face of the globe.

Several other subjects affecting the character of this road will be here referred to.

As a grand trunk forming the basis of a system of railroads within the commonwealth it will be most favorably located. The great valley of Virginia drained by the Shenandoah and the James river, would be crossed nearly at right angles, and would, by means of lateral roads, furnish a vast amount of tonnage for transportation. On the south the great southwestern road would soon be opened, and bring into this great central channel the mineral and agricultural productions of the southwest sections of the state. This would soon be extended into the valley of the Tennessee river, and probably carried through to the Mississippi. The Richmond and Danville road, opening into the southwestern counties, and extending into North Carolina, would also bring to this common trunk an immense business. The valleys of the Jackson, Greenbrier, and the New River, would also be unlocked by this railway, and contribute a valuable accession to its trade. As a great travelling thoroughfare, this route would be thronged by multitudes passing from east to west and from north to south. This would be the case a great part of the year, even should Virginia remain as at present in a state of commercial dependence on the north—for as a great line of intercourse between New York and the southwestern cities, it would be the favorite route at those seasons when the travel was impeded on the northern routes, either by snow or the low water of the Ohio. But still more would it become a highway for the merchant, should Norfolk and Richmond become great commercial and manufacturing cities, as they would should Virginia be true to herself. As a means of approach to the federal city, the Richmond and Ohio railroad would accommodate the southwestern members better than any other, and especially as the meeting and adjournment of congress occur at those seasons when the more northern routes are most likely to be obstructed. Indeed the same will hold true with the mercantile community, who



usually seek the Atlantic cities early in the spring or late in the autumn, while those who travel for pleasure make their journeys more usually in the midst of summer when the Ohio is low; at this season the watering places in Virginia are thronged with visitants. Many thousands annually visit those springs, and their number no doubt would be tenfold if the railroad car were substituted for the tedious and expensive stage coach. As to the business of this route, the writer does not possess certain data from which to make any comparison with the other routes, yet he is fully confident that in this respect also it will compare most favorable with any other. The fact that the whole road will be under the direction of one company, added to its great facilities for business and travel, will enable the company to transport freight and passengers over their line as low as upon any other road across the Alleghenies. Flour could undoubtedly be carried from Guyandotte to Richmond for 50 cents a barrel, and passengers for \$10 each. Another source of income would grow out of the large coasting business which the road would originate. The produce of the west destined for the central cities and ports of the Atlantic coast north and south of Norfolk could be better supplied by this road than any other. So also would immense quantities of this produce be shipped at its eastern terminus, for foreign ports, and the ships of Boston and New York would here also discharge large quantities of merchandize for the western trade. The sale and transportation of produce designed both for foreign and domestic ports, and the importation of western merchandize would greatly augment the trade and population of Richmond and Norfolk, and increase the business of the road.

In regard to the cost of this road, owing to the open route granted in the charter, and the comparatively small expense of the right of way, as also from the fact, that all the materials for the construction of the road, such as timber, lime, stone, hydraulic cement, etc. are found in abundance along the line, especially from the probability that the company will, to a great extent, manufacture their own rails; it is believed that the entire road will not exceed \$10,000,000. The interest, on this capital, would be, at 6 per cent. \$600,000. It will be necessary, therefore, that, in order to pay, the income from the business of the road must be at least \$760,000. This allows 400 per mile for the annual expenses of the road.

It might be noticed here, that the net income of the Western railroad from Boston to Albany, for the year 1846, was \$680,585; and of the Baltimore and Ohio railroad for the year 1845, the revenue was \$729,920. Thus it appears that the Western railroad, of 200 miles, competing with 150 miles of the best steamboat navigation in the world, and also the Baltimore and Ohio, extending only 178 miles, or about half the distance to its contemplated western terminus, have each of them earned nearly as much as would be required for the Richmond and Ohio, in order to nav the annual repairs, and divide six per

cent. Who that reflects upon the great advantages of this road, would not readily see that the net income of this great railway, at least 400 miles in length, would be more than double that of the Baltimore and Ohio in its unfinished state. In the able report of the late president of the James River and Kanawha company, it is shown that 500,000 tons, at half a cent a ton, would pay the annual charges of a water line through the state, from Richmond to Point Pleasant, and divide six per cent. on \$15,000,000, the estimated cost of such a work; and that the iron trade alone originating along the line, would, in a few years meet three-tenths of that amount.

In 1846, the tonnage on the Erie canal, arriving at tide water on the Hudson, was 669,012, and going from tide water on the Hudson, 129,580, making a total tonnage of 898,592. Now, if the through tonnage of this line, be taken at 200,000 tons, what charge, per ton per mile, would have to be made to defray the expense of the line? Mr. Roebling lays down an important principle, that the profitable success of railroads, like other mechanical operations, will greatly depend upon the amount of work done; and in a table furnished by him, it appears that on a road with a double track, built at an expense of 50,000 dollars per mile, and whose gross tonnage was only 40,000, in order to declare a dividend of 6 per cent. upon the capital invested the charge for freight per ton per mile, would have to be 84 cents;—whereas, if the gross tonnage amounted to 200,000, the charge would only be 2.22 cts. According to this table, estimating the cost of the road at 25,000 per mile, and allowing 200,000 through tonnage, the charge per ton per mile would have to be 1.47 cents, and allowing only 100,000 tonnage, the charge to warrant the same dividend, would be 2.29 cents.

No well informed man, who duly considers the advantages of this line, and reflects upon the amount of business which it will create throughout the whole of the state, and upon the amazing productiveness of the west already sufficient to fill every avenue leading to the seaboard, and still rapidly increasing almost beyond the power of computation, can for one moment doubt that the tonnage of this thoroughfare will vastly exceed the amount above stated. More than the income above required to pay a dividend of 6 per cent. per annum, would undoubtedly be derived from passengers alone.

Estimating the travel upon this line as equal to 75,000 through passengers, and the fare from Guyandotte to Richmond, at three cents per mile, or twelve dollars, the income from this source would be 900,000 per annum. But if we look upon the travel of the other great lines of railroads in the United States, and especially upon the Baltimore and Ohio, in its present unfinished state, the inference is a fair one, that the travel through this line, would at least be equal to 100,000 through passengers; this, at the above rates named, could produce 1,200,000 dollars. The income from freights would, beyond question, be equal to that derived from travel, which

would give, as the proceeds of the road, 2,400,000. If we were to take the proceeds of the Baltimore and Ohio road as a basis of calculation, the income of the Richmond and Ohio would soon exceed this vast sum per annum. By recurring to their last annual report, it appears that the travel upon their road for the last year was, in round numbers, equal to 52,000 through passengers.

That this number would be more than doubled upon the completion of their route, cannot be doubted. Giving to the Richmond and Ohio railroad the same travel with the Baltimore and Ohio railroad in comparison with their respective lengths and the income of the former would be at three cents per mile for each passenger, 1,332,000 dollars.

But to enable us to approximate towards the probable tonnage of this line, let us make an estimate of some of the staple productions which would be transported over the road. The Ohio crop of wheat in 1840, in round numbers, was 17,000,000 bushels, and in 1846 probably not less than 22,000,000 bushels, equal to 4,500,000 barrels of flour. Allowing 2,500,000 for seed and home consumption, we have 2,000,000 barrels for exportation. Now allowing one-fourth of this to pass over the road at 50 cents per barrel, and we have 500,000 barrels, at 50 cents per barrel, 250,000 dollars.

The quantity of tobacco transported over this road, considering the reputation of Richmond as a tobacco mart, and the strong probability that the tobacco of the west will be sent hither, rather than to New Orleans, and it will be safe to estimate the quantity at 50,000 hogsheads,

Which, at \$4 per hogshead, is.....	\$200,000
Pork, say 200,000 barrels, at \$1 per barrel.....	200,000
Live hogs, 30,000, at \$1 per head.....	30,000
Freights from iron, and the materials connected with its manufacture, estimated as only equal to 50,000 tons through the whole line at 14 cents per mile per ton, and we have.....	300,000
Miscellaneous freights, including lumber, hemp, flax, wood, wool, salt, ginseng, etc.	200,000
For travel, equal say to only 75,000 through passengers, and at even \$10 each, 2 1-2 cents per mile.....	750,000
Merchandize going west, 47,000 tons at 24 cents per mile per ton.....	470,000

Making a total of.....\$2,400,000

These estimates are relied upon only as approximates, and yet it would be difficult to make them less, considering the immense advantages of this work. Now, if one-half of this amount be taken as the net proceeds of the road, we have 1,200,000, equal to a dividend of 12 per cent. upon the cost of the road, and that, too, without taking into consideration any profits which the company would derive under the charter, from the extraordinary land and manufacturing privileges. In conclusion, it is gratifying to know that this great railway is attracting the favorable notice of the public, and especially of enlightened and high minded advocates of rival lines—and it is to be hoped that the citizens of Virginia will make liberal subscriptions to its capital stock, and thus, by inspiring confidence abroad, secure the immediate accomplishment of this noble enterprise.

# CHILLED CAST IRON WHEELS FOR RAILROADS.

**ANNEXED ARE LITHOGRAPHS OF CHILLED CAST IRON RAILROAD WHEELS,** to which I would call attention.

Having been extensively engaged, for 12 years past, in the manufacture of Chilled Wheels, both for Engines and Cars, I recommend them as a good article. The result of my long experience has pointed out various improvements in the form of Spoke, disposal of Metal in the Rim of Wheels, and the mixture of Iron in the Foundry; I feel confidence, therefore, in saying, that my wheels are, in every respect, equal to the best that are made in the country.

The Ring Wheel is a patent article, and from long experience has been found to be superior to every other description of chilled wheels. A Malleable Iron Ring is cast in the Body of each Wheel, which serves the purpose of Chilling much more perfectly, immediately over the Ring, and at the Joint of the Tread and Flanch, than can be done by any other mode. This part of a wheel is rarely well chilled without the use of the ring, and the severe action when in use at this particular point on a wheel, wears it most rapidly away, and renders them unfit for use, notwithstanding the other parts are well chilled. The wrought iron ring also secures the cast iron wheel against the liability of disaster from breakage.

I would call attention also to the Shape given each Spoke: they are formed on the same principle as the Tapered Axle, and relieve the Wheel from sudden shocks, by a proper distribution of the vibrations caused by such shocks, and which if allowed to centre at one point, soon break the wheel. The disposition of the metal in the rim is found, on long experience, to be the best for chilling.

The Chilled Driving Wheels, for Locomotive Engines, I can also recommend, as well on their own merits, as the fact that the demand for them has very materially increased during the past two years. The Baltimore and Ohio, Baltimore and Susquehanna, and Philadelphia, Wilmington and Baltimore Railroads use them entirely. These wheels have to recommend them—that they are much lighter than the cast iron wheels with wrought iron tires; their use entirely does away with the expense and trouble in the constant turning and refitting consequent upon the use of wrought iron tires, and their first cost is materially less than that of wrought iron tired wheels—the chilled wheels being about one-half, and their durability is double that of tired wheels.

These facts, together with the assurance of the Roads immediately around me, that engines which have had chilled drivers substituted for wrought iron tired wheels, evinced no want of tractive power, growing out of such a change, but performed their daily work with the same ease and with less trouble than heretofore, suggest the propriety of calling attention to them.

Wheels, with or without rings, of any particular stand of hub, or pattern, (when the order is such as to warrant the expense,) other than the drawings show, will be forwarded to order with despatch, either in the rough, or keyed and banded, or fitted on axles, as may be desired. I have on hand various other wheel patterns, not represented in Lithograph; these I send a sketch of as most used at present.

Railroad Work of all kinds I am extensively engaged in the manufacture of: Locomotives for Freight or Passenger Transportation, Iron Cars for Coal, Frame cars and Trucks, together with Stationary Engines and foundry work of all descriptions.

Address ROSS WINANS, *Baltimore, Md.*

## GUN COTTON.

We are indebted to Messrs. John Hall & Sons, of Lombard street, for the following copies of letters received from their agent, Mr. John F. Wheeler, giving details of further and most satisfactory experiments in blasting, with this new and wonderful power. The statements are so explanatory in themselves, as to require no comment from us.—*London Mining Journal.*

"GENTLEMEN: I beg to enclose you my report on blasting with the patent gun cotton, at the Holyhead Mountain, Anglesea; the Holland Slate Quarry, Frestiniog, Merionethshire; and at the Hon. Col. Pennant's slate quarries, Penrhyn, near Bangor, Carnarvonshire. The experiments at Holyhead were made in the presence of Capts. Vidal, Collinson and Shepherd, commissioners from the admiralty; Mr. Beardmore, Mr. Dobson, Mr. Liester and Mr. Clifford, engineers, and several gentlemen interested in the matter.

The rock upon which these experiments were made is exceedingly hard, of a meta-

moritic character, mica and chlorite slate, with quartz.

The results gave the most convincing proofs of the vast superiority of the patent gun cotton over gunpowder, which was acknowledged by all the gentlemen present.—The gunpowder used in these experiments was the best ordnance gunpowder. The next series of experiments were made at the Holland Quarry, Frestiniog, Merionethshire, in the presence of Mr. S. Holland, Jr., Mr. H. Stock, of Port Madoc; Mr. C. Spooner, Port Madoc; Mr. R. Jarrett, Frestiniog; Mr. R. Lloyd, Frestiniog; Mr. Searle, of Carmarthen; Mr. Chisel, of the Welsh Slate Co.; Mr. Owen Pritchard, of Messrs. Matthews & Sons; Mr. Owen Jones, of Messrs. Shelton & Greaves; Mr. Hughes, of Messrs. Casson & Co.; Mr. Selwyn, Mr. Hill and other gentlemen.

The first of the experiments tried in this quarry were made upon an extremely hard calcareous stone, the others upon the slate; the admirable manner in which the slate was removed from its bed by the patent gun cotton elicited the most general satisfaction, and gave

incontestible proof of its suitability in blasting slate, being far superior to gunpowder; the pieces removed by the cotton were large valuable masses. The last experiments made were in the slate quarries at Penrhyn; there were present at these, Mr. Wyatt, Mr. Frances, Dr. Roberts, and others. The wonderful effect produced by the cotton was, you will find by reference to the tabular form, more astonishing than anything hitherto tried—the huge mass of 60 tons weight was gently pushed from its firmly bound bed, by the explosion of only eight ounces of cotton; no splintering of slate took place, which greatly astonished the workmen, many of whom expressed that the danger was far less by its use than gunpowder. The gentlemen present acknowledged the superiority of gun cotton over gun powder to be in ordinary slate work in the proportion of six or seven to one, and in hard rock to be four and five to one.—Some other experiments were tried by me at Fridd Issa Quarry, about two-thirds up the Snowdon Mountain, with similar good success.

J. F. WHEELER.

Bangor, May 5.



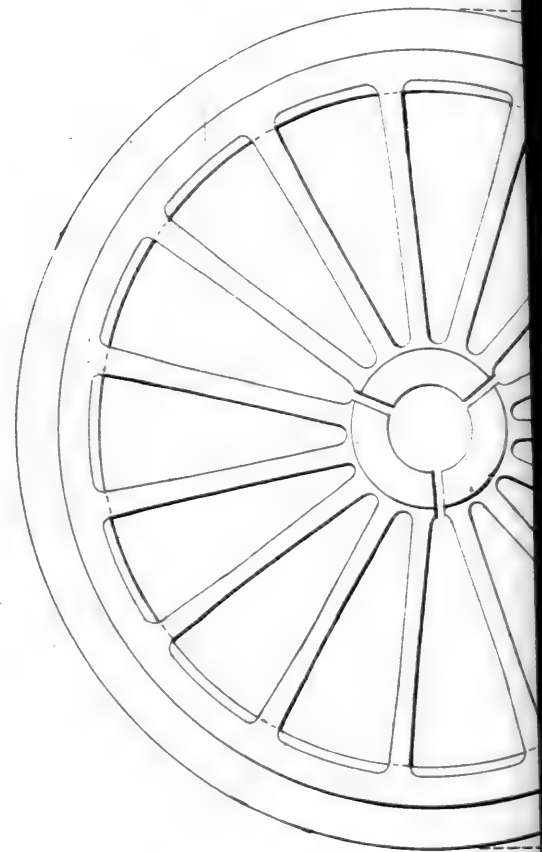
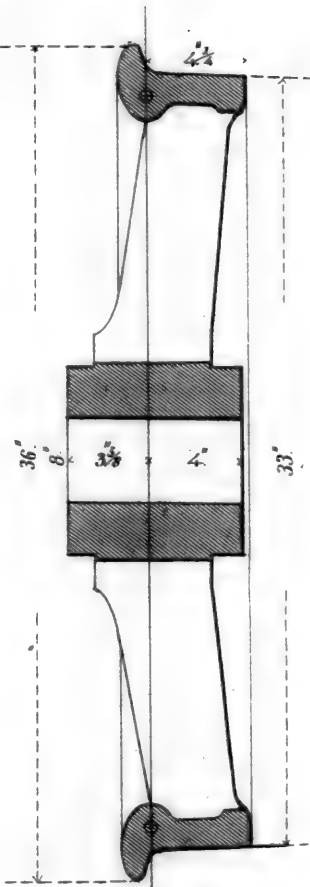
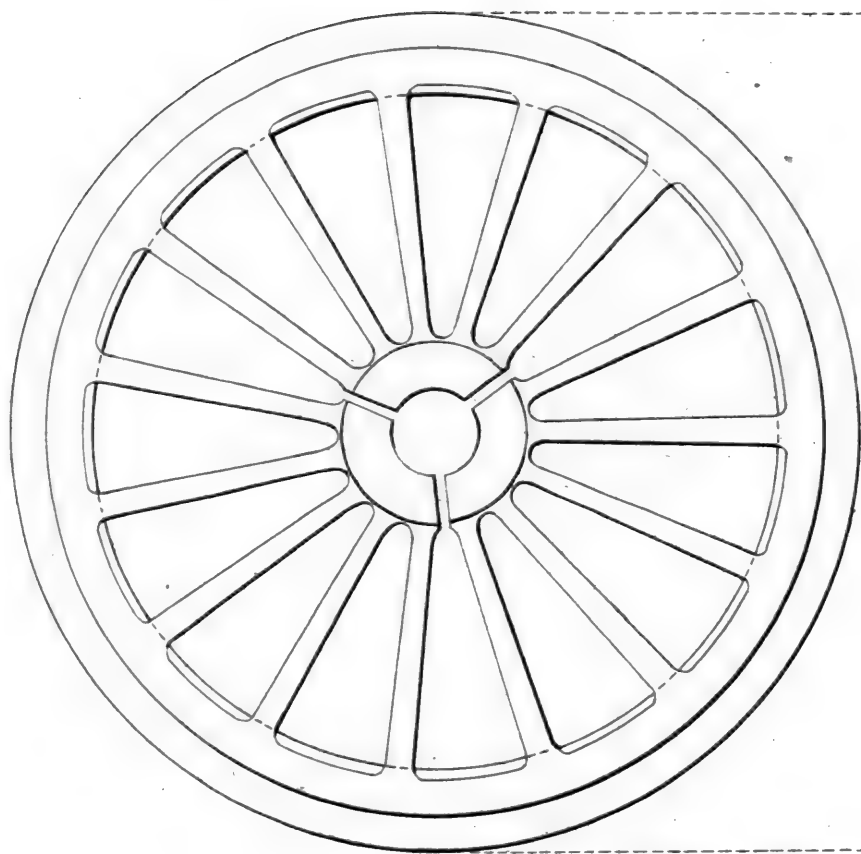
# CHILLED CAST IRON RAIL ROAD W

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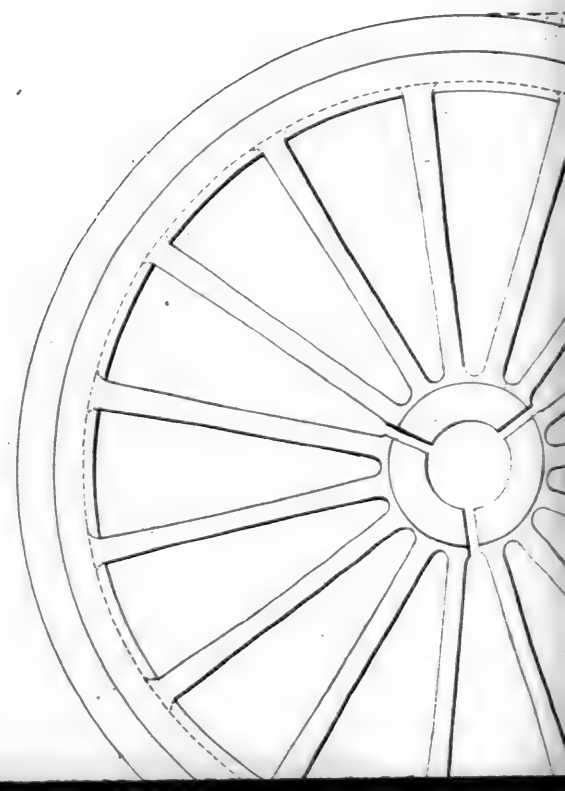
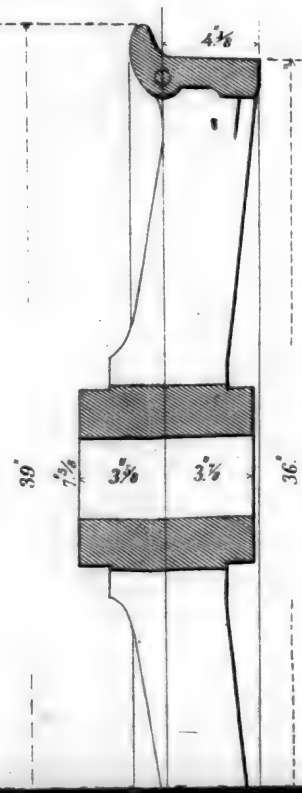
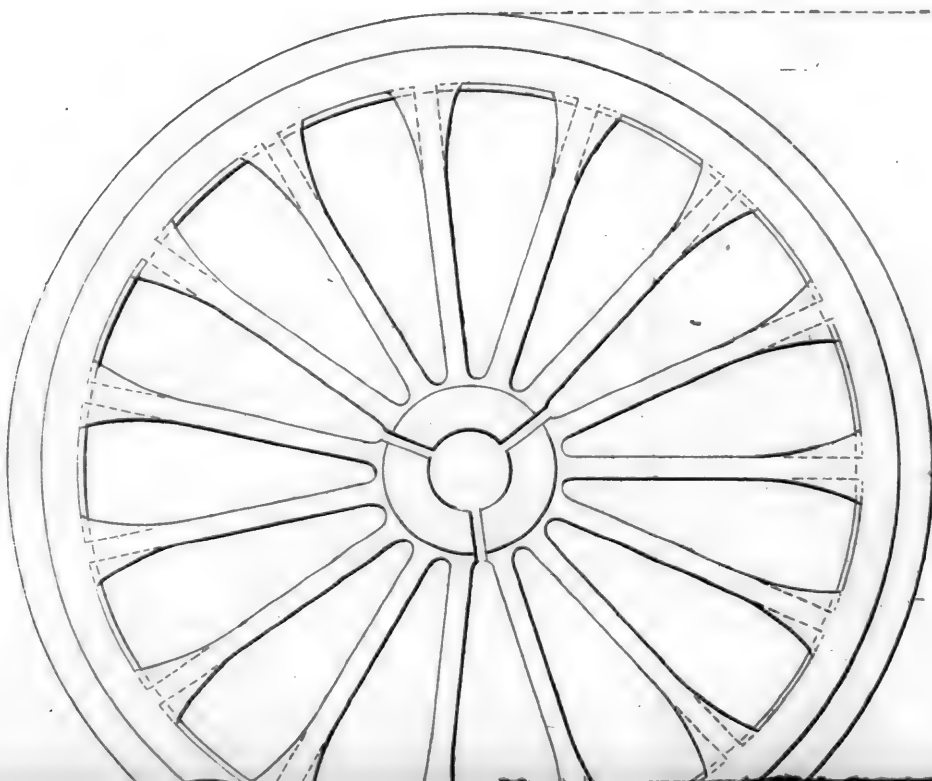
## ROSS WINANS

BALTIMORE MD

33 inch 500 lb. Ring Wheel  
*Used on the Penn. & New England Roads*



36 inch 500 lb. Ring Wheel  
*Used on the Lowell & other Eastern Roads*



# ST IRON RAIL ROAD WHEELS

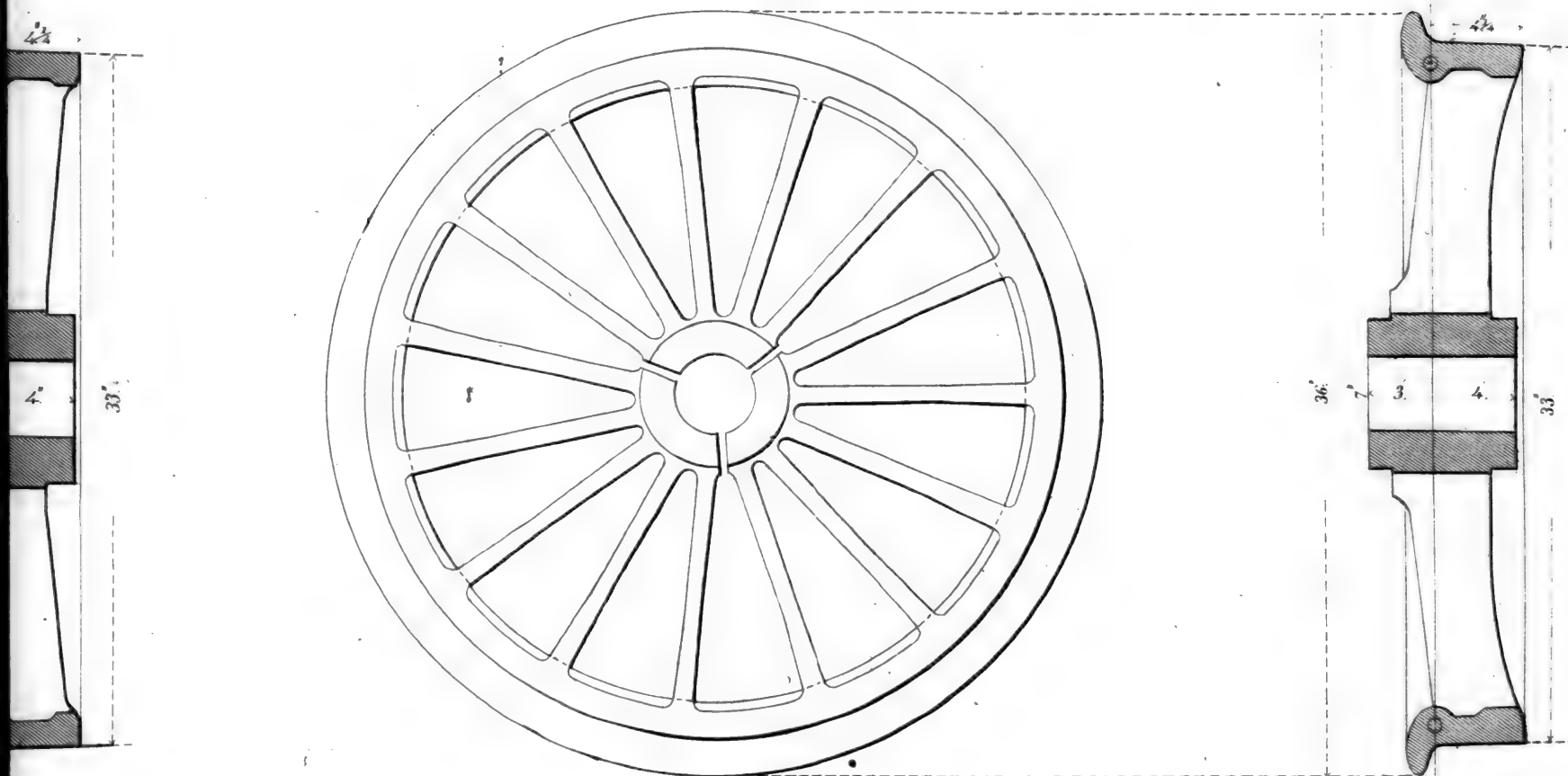
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## ROSS WINANS

BALTIMORE MD

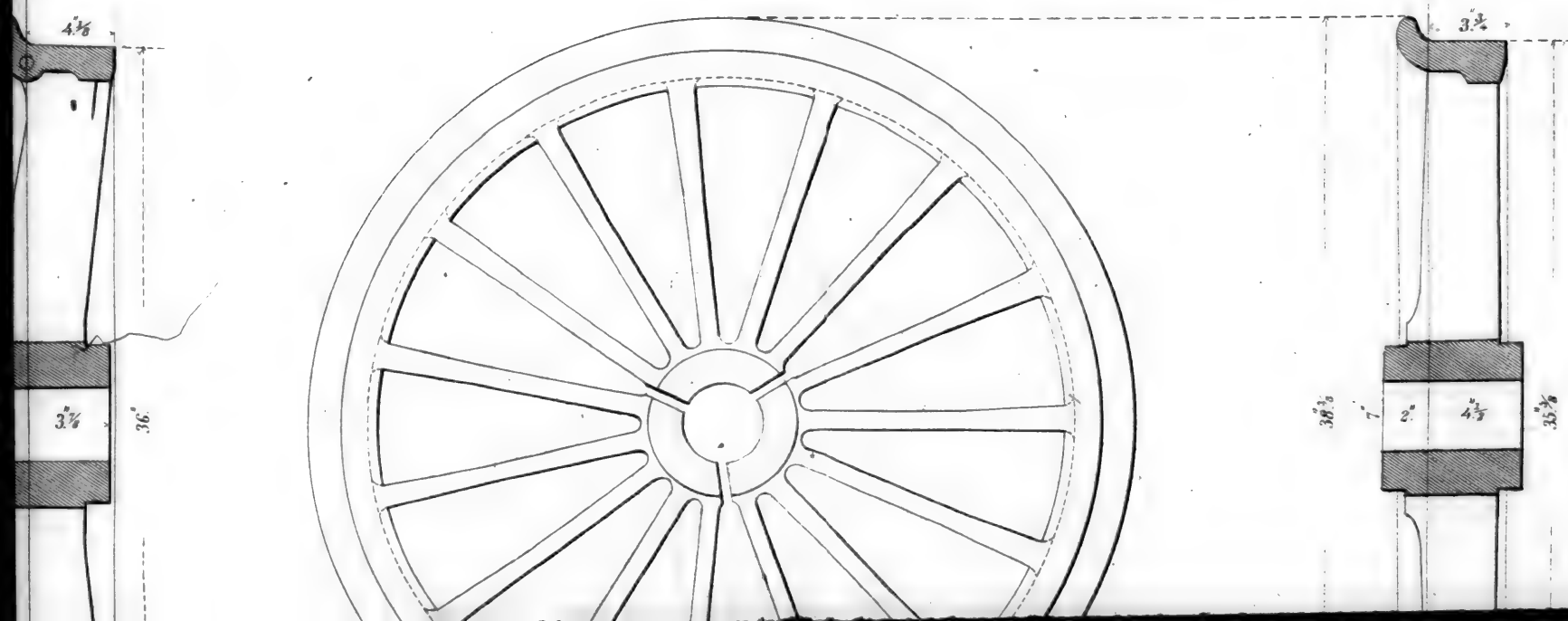
33 inch 440 lb. Ring Wheel

*Used on the Penn. & New England Roads*

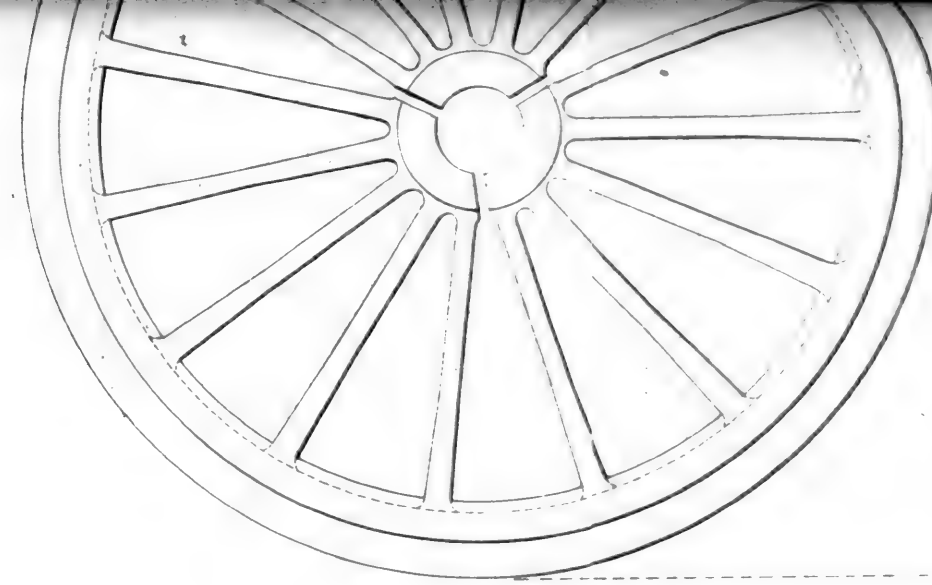
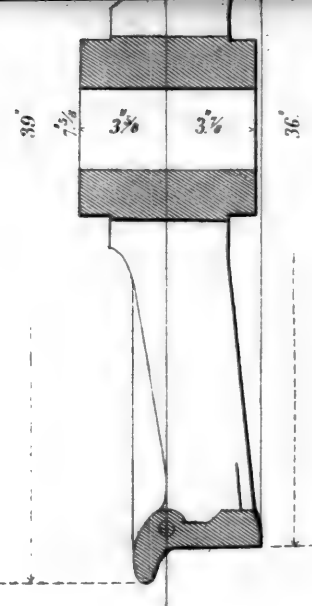
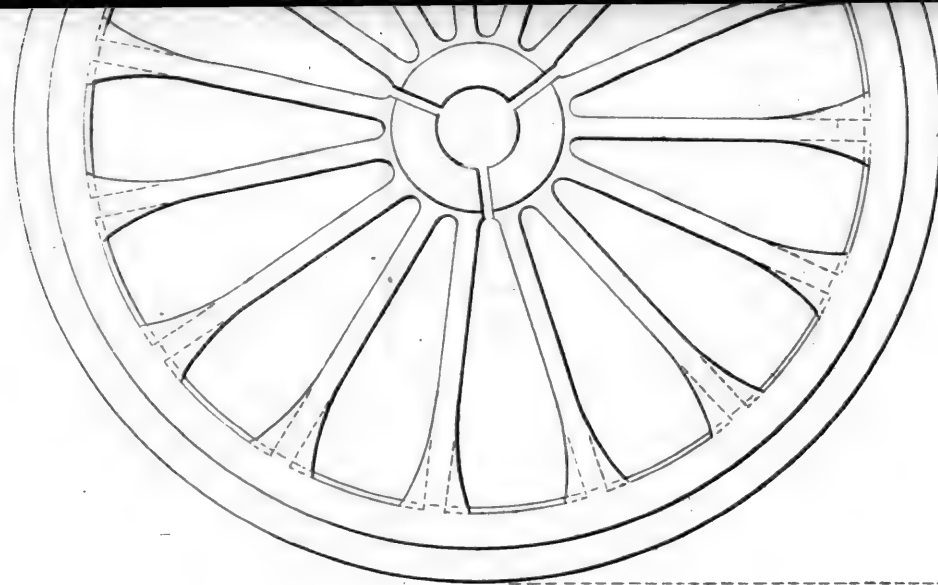


36 inch 440 lb. Wheel

*Used on the Reading & other Roads*

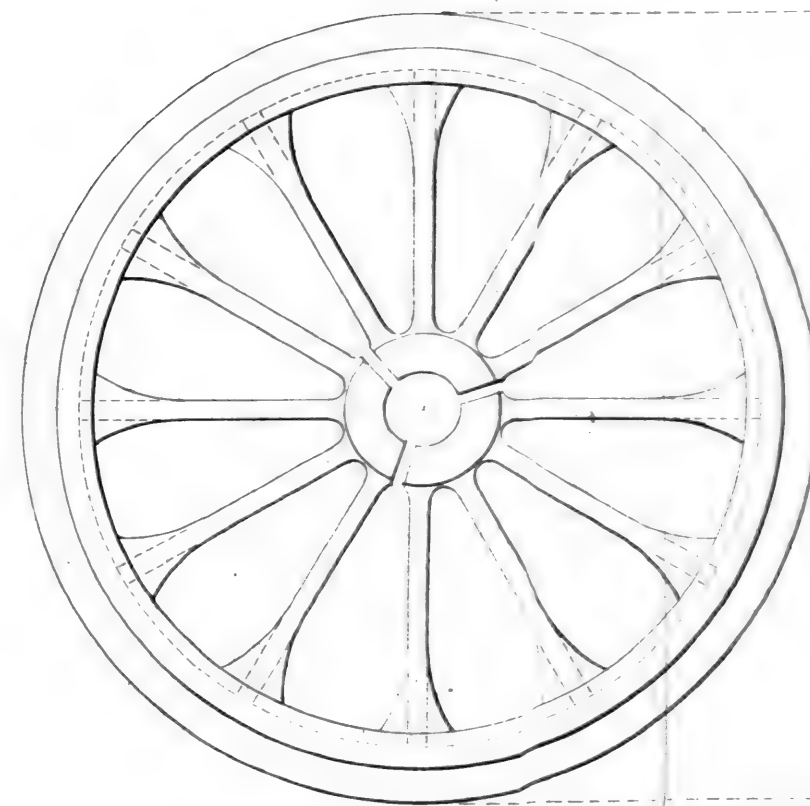
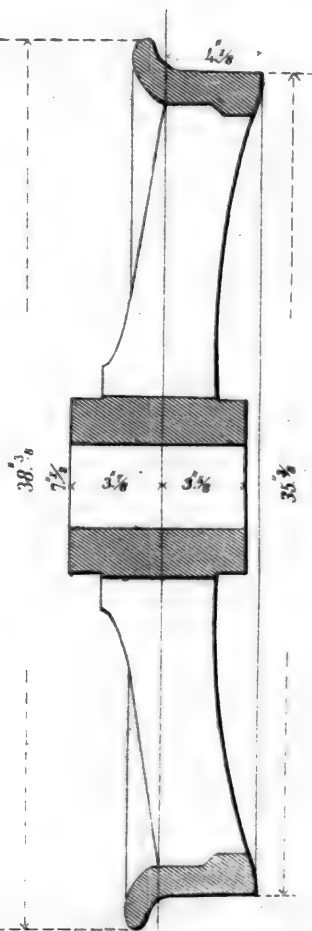
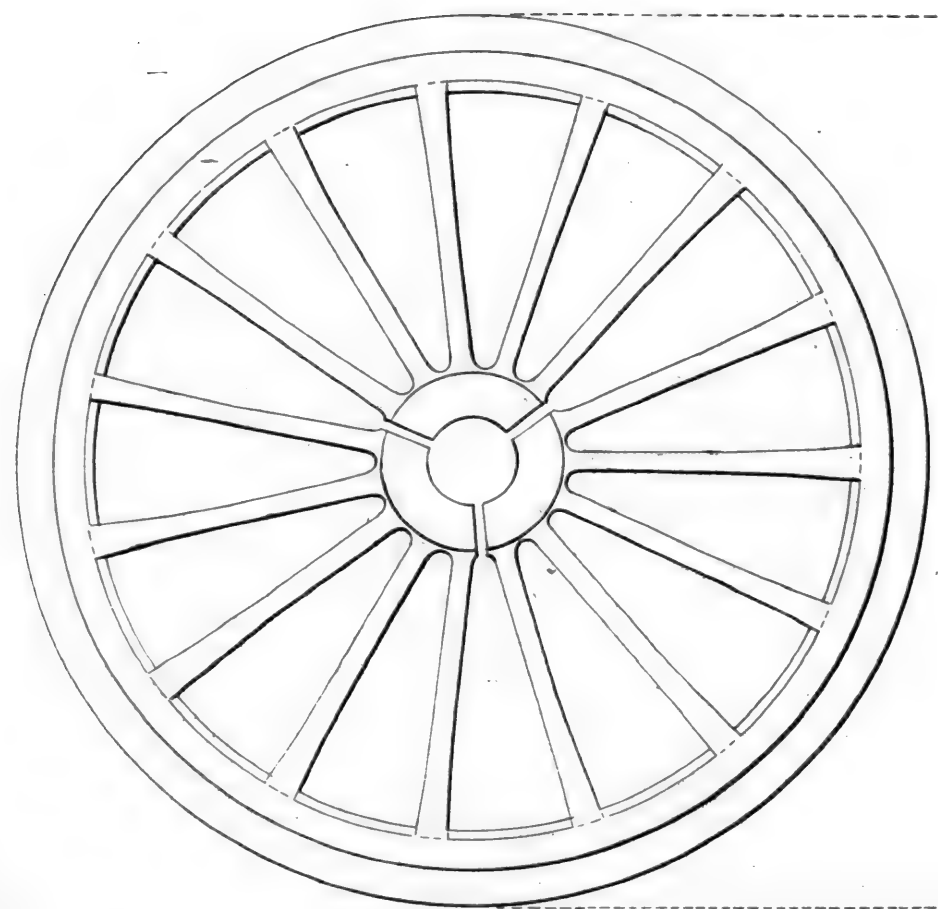


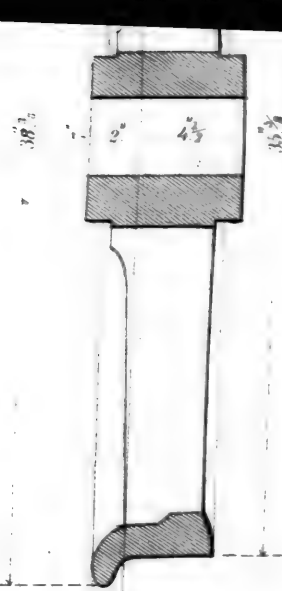
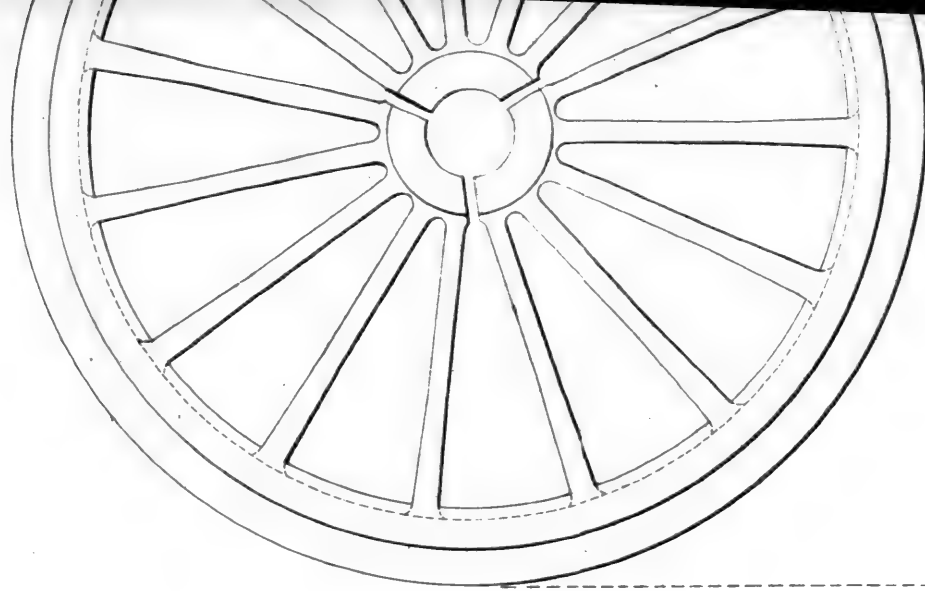
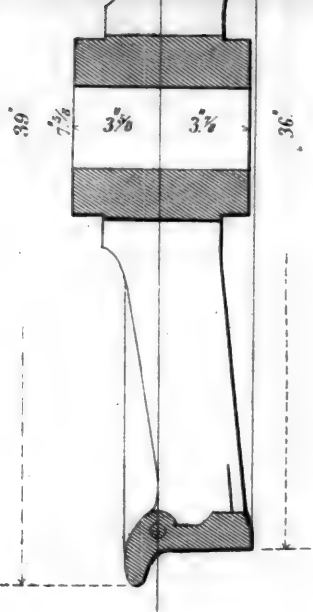




36 inch 475 lb. Wheel  
Used on South Carolina & other Southern Roads

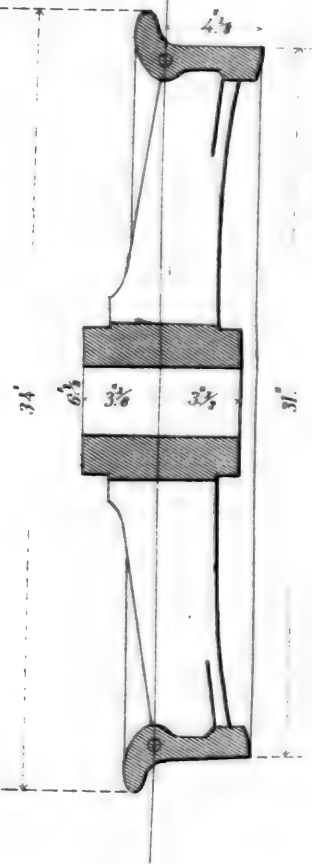
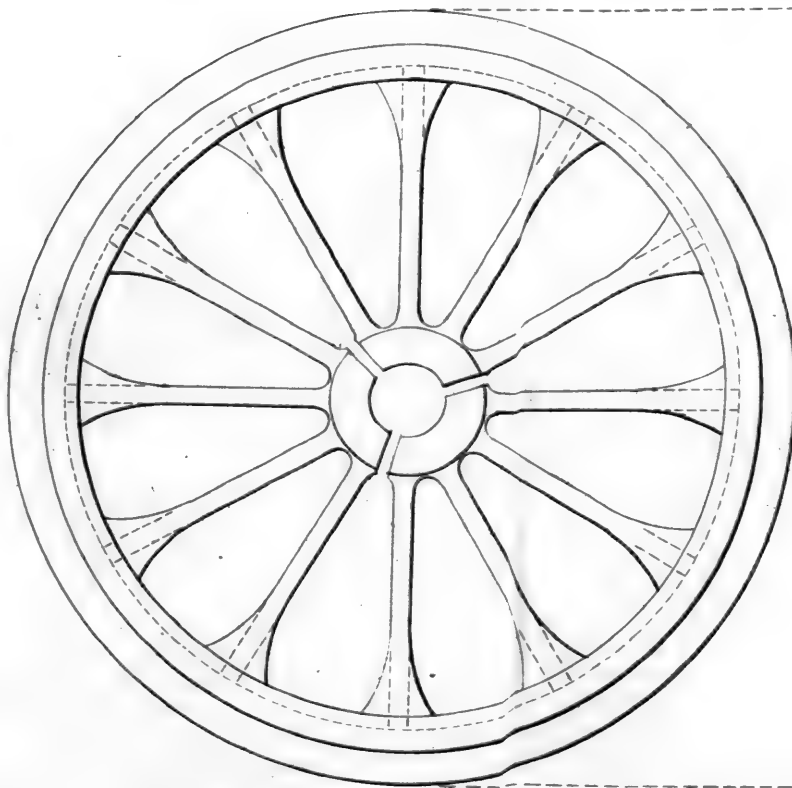
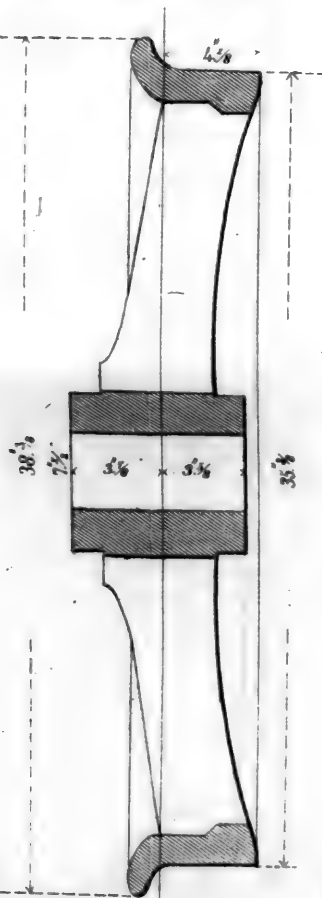
31 inch 360 lb. Ring Wheel  
a strong light wheel suitable for tenders & trucks





lb. Wheel  
other Southern Roads

31 inch 360 lb. Ring Wheel  
a strong light wheel suitable for tenders & trucks





*Experiments made in blasting with gun cotton in the slate quarries of the Hon. Col. Pennant, at Penrhyn, near Bangor, Carnarvonshire.*

No. of Expts.	Depth of Hole.	Diameter of Hole.	Quantity of gun cotton used.	Quant. of slate removed.	Gunpowder required for the same w'tk.
	ft. in.	inches.	ounces.	tons.	
1	4 2	1 1/2	8	tube 30	40oz. (1)
2	6 5	1 1/2	8	tube 60	48oz. (2)
3	8 0	1	8	loose 60	48oz. (3)
4	4 0	1 1/2	8	loose 3	24oz. (4)

The results of the above experiments were considered admirable by every one present—producing just the effect so much desired in slate quarrying.

*Remarks.*

- (1.) In red slate, commonly called by the men "granite," owing to its great hardness.
- (2.) Hole driven in horizontally—the whole mass gently forced from its bed, just as required by the quarrymen.
- (3.) Hole in a similar position, and the result equally good.
- (4.) This "shot" being in a very fast place ought to have had one ounce more of cotton.

*Experiments made in blasting with gun cotton and gunpowder at Mr. Holland's slate quarry, Festiniog, Merionethshire.*

Depth of Hole.	Diameter of hole.	Distance of hole from face of rock.	Weight of powder.	Weight of cotton.	Weight of stone removed.
ft. in.	inches.	ft. in.	ozs.	tube 4 ozs.	tons.
2 3	1 1/2	2 6	16	.....	2 1/2 (1)
2 3	1 1/2	2 0	16	.....	2 1/2 (2)
2 3	1 1/2	3 0	16	tube 4 ozs.	3 (3)

The above experiments were made upon an exceedingly hard calcareous stone.

3 6	1 1/2	3 6	2	ozs.	— (3)
2 0	1 1/2	1 4	6	.....	— (3)
3 1	1 1/2	2 6	1 1/2	ozs.	2 1/2 (4)
5 0	1 1/2	5 6	3 1/2	ozs.	9 (5)
2 0	1 1/2	5 0	2	ozs.	— (6)
2 6	1 1/2	4 6	16	.....	4 1/2 (7)

*Remarks.*

- (1.) In stemming down the fuse was cut. The stemming drawn out and cotton fixed; split the stone 4 feet down.
- (2.) The slate cracked, but not removed.
- (3.) Did not fire—"smoked."
- (4.) This was in a fast place—removed the slate in a fine piece.
- (5.) Removed in fine and valuable pieces.
- (6.) Removed from its bed in fine large pieces.
- (7.) Shattered, and thrown about in useless pieces.

*Experiments made in blasting with gun cotton and gunpowder on the Holyhead mountain.*

Depth of Hole.	Diameter of Hole.	Distance of hole from face of rock.	Weight of powder used.	Weight of cotton used.	Weight of stone removed.
ft. in.	inches.	ft. in.	ounces.	ounces.	tons.
4 0	1 1/2	3 6	40	.....	18 (1)
4 6	1 1/2	4 6	40	.....	19 (2)
4 0	1 1/2	4 0	..	paper tube, 8	17 (3)
4 6	1 1/2	6 0	40	.....	16
3 1	1 1/2	5 0	..	loose, 10	17 1/2
3 1	1 1/2	4 0	..	tube, 6	9
3 1	1 1/2	4 0	..	tube, 6	8
3 6	1 1/2	3 6	16	.....	3
3 0	1 1/2	3 0	..	tube, 6	— (4)
3 0	1 1/2	2 0	16	.....	2 1/2

The character of the rock is metamorphic

—a mica and chlorite slate, exceedingly hard, but much ruptured.

*Remarks.*

- (1.) Much broken and thrown from the face.
- (2.) Not so much broken, but easily removed.
- (3.) Removed in large blocks, one weighed 2 1/2 tons.
- (4.) Not weighed. J. F. WHEELER.

*ITEMS.*

**A Large Casting.**—On Saturday afternoon the 13th instant, Messrs. T. F. Secor & Co., of this city, moulded the bed plates for the new steam-ship United States, one of the four packets to run between New Orleans and Liverpool. The casting weighed over 24 tons. The most of the metal was from Iron-  
dale, Pennsylvania, with a slight mixture of Scotch pig. The engines are to cost \$115,000. These steamers are to be 2,200 tons burden. The United States is to have two side-lever marine engines, of 82 inch cylinder and 9 feet stroke, each of the power of more than 1000 horses.

The Tribune says, could Robert Fulton but have lived to see our day, and he would not have been a very old man, he would have gone down to the tomb full of honors more solid and lasting than ever decked the triumphal car of a conqueror.

**Great Telegraphic Experiment.**—New Haven was put in telegraphic communication with Toronto, Upper Canada, recently, and messages were instantly exchanged between the two cities. The route is via New York, Albany, Rochester, Buffalo, and then crossing the Niagara river below the falls, passes round Lake Ontario to Toronto, the entire distance being nine hundred miles! The experiment was a most successful one, and the distance was overcome with as much apparent ease and promptness, as between New Haven and Hartford. It was the longest distance ever traversed by the lightning in a continuous unbroken line.—*New Haven Herald.*

**Portsmouth and Concord Railroad.**—The annual meeting was holden on the 12th ult.—The report of the directors states, "that as the amount of stock now subscribed exceeds \$600,000, it will be in their power soon to put the whole line of the road from Portsmouth to Concord under contract."

We were very glad to learn these facts. Portsmouth, like most Atlantic towns, long ago discovered the necessity of creating resources aside from improving those with which nature had blessed her. Her barbor is one of the best in the world, but for a long time business at that place has ceased to increase, owing to the increased means that have been provided for approaching Boston. Boston has, indeed, made New Hampshire a mere tributary to her, and the inhabitants of the Granite state have come to think, at last, that the very clothes they wear, and the delicacies of their table must be obtained from the city.

We have seen this state of things with no little regret; and we now always hail the sight of the tall chimney to the mammoth

factory lately erected in Portsmouth, with nearly as much pride as the sight of the column on Bunker's Hill. The latter tells of past achievements, the former of present prosperity.

We wish all success to the railroad enterprise in which Portsmouth is engaged, believing that she could take no safer step to advance her own interests.—*Lewiston Falls Journal.*

**Unruly Locomotive.**—The editor of the Georgia Luminary has been informed by a gentleman acquainted with the circumstance, that a new and splendid locomotive named Gen. Taylor, tried on a railroad in Georgia, would not back.

**Railway Expenditure in Great Britain.**

We find in Herapath's Journal of 15th May an article on the subject of Railway expenditures in Great Britain, which shows clearly the rapid increase of Railroads.

The whole expenditure up to January 1, 1841, was less than £30,000,000, while it amounted to over £46,000,000 from that time to January 1, 1847—a period of only six years—or nearly eight millions a year—an amount almost incredible—yet a trifle when compared with the expenditure of the current year, which will probably exceed £30,000,000! and if the calls for the last seven equal those of the first five months, they will amount to over £38,000,000, or \$190,000,000!!

**Expenditure in the Construction of Railway Works.**—It appears from a recent return, that the money expended in the actual construction of all railways in Great Britain and Ireland, prior to the 1st of January, 1841, amounted to £29,909,435; from that period to the 1st of January, 1844, £12,165,006 were expended; and from thence to the 1st of January, 1847, a sum was expended in a similar manner, of \$34,627,203: Total, £76,821,644. This shows an average expenditure between 1841 and 1844, of £4,055,002 per annum, and between 1844 and 1847, of £11,552,401 per annum, on the construction of works.

There was also expended on Working Stock, independent of the above, prior to the 1st of June, 1841, £2,151,844; from that period to the 1st of January, 1844, £1,441,023; and from thence to the 1st of January, 1847, £3,714,108: Total expenditure on Working Stock, £6,596,212.

This would show an average outlay during the former three years, of £480,341 per annum, and during the latter period, an average expenditure on Working Stock, of £1,038,036 per annum.

These returns, however, are not complete; they do not include those of the Grand Junction, Manchester and Birmingham, and the Liverpool and Manchester,—all of which now belong to the northern division of the London and North Western Railway. Neither do they include those of the Manchester and Leeds, the Manchester, Bolton, and Bury, and others, and for which, a sum of £10,000,000 may fairly be added to the above, making the total expenditure on the construction of railway works, about £86,100,000, and on Working Stock, engines, carriages, etc., £7,428,619, including a total

expenditure on railway works and working stock only, of £93,528,619 up to the commencement of the present year. Of this sum £7,034,255 has been expended upon new lines not yet opened. Since the 1st of January last, and including the present month, the total amount of calls for the United Kingdom during the five months is £15,937,431, and should calls continue to be made on the above railways at the same rate during the next seven months, the total for the year will amount to about £18,250,000. Should this sum be obtained and expended, the average expenditure of the present year on railway works will be nearly three and a-half times that of the three preceding years. It may be interesting to know that the principal part of the above sum, £93,528,619, has been disposed of by private agreement between the directors and the contractors, public competition being generally discouraged in these matters. It is, therefore, not surprising that some Railway directors should be so tenacious of retaining their seats at the Boards, and that several Railway contractors who have already accumulated enormous wealth by these transactions between themselves and the directors, should have advanced into the "Directory line," as they term it, dispensing those good things on their own account, which they were formerly obliged to receive at second or third hand.

As long as those lucrative privileges are attached to the office of certain Railway directors, it is not probable that there will be any deficiency of railway projects. During last session the legislature sanctioned projects to the extent of £120,000,000; of this sum about £90,000,000 will be required for the construction of works and the purchase of locomotive stock, which I trust will be disposed of by public tender, instead of by the former practice. The projects this year are chiefly promoted by established Railway Companies, and appear, from the report of the Railway Commissioners, to be of a most extensive character, involving serious liabilities on the Shareholders. These Bills will probably furnish directors with the disposal of a further sum of £70,000,000 under the above head. T.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. HALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 24 x 1 inch Flat Punched Rails, 20 ft. long. 25 " 24 x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 111

**TO RAILROAD CONTRACTORS.**—PATerson and Ramapo Railroad.—Proposals will be received until the 30th day of June, inst., for the Grading, Masonry and Bridging that part of the Paterson and Ramapo Railroad, extending from the north side of the Passaic river to Ramapo, a distance of about 14 miles.

Maps, Profiles and Specifications may be found at the Engineer's Office, Paterson, where every necessary information will be given.

225\* J. W. ALLEN, Engineer.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

#### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Flak, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP** and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

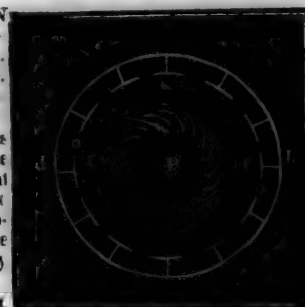
#### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J., or 60 Wall street, N. York. ja45





# DAVENPORT & BRIDGES'

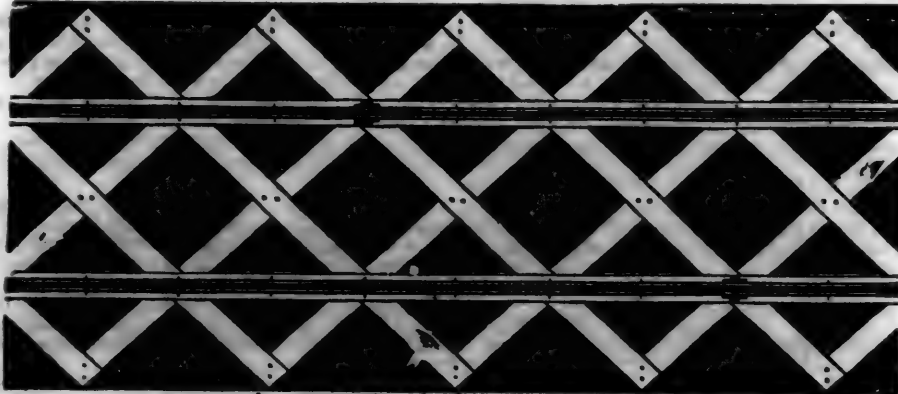
## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestle for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge.....	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

331f

### LAP-WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

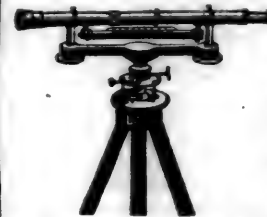
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

### ENGINEERS' AND SURVEYORS' INSTRUMENTS MADE BY EDMUND DRAPER, Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

12cf

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

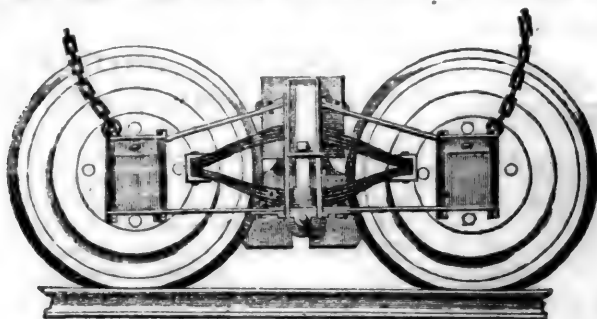
For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

331\*

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope. INCH.	Weight per fathom. LBS. OZ.	Circumference of rope. INCH.	Weight per fathom. LBS. OZ.		Weight per fathom. LBS.	Diameter of iron. INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay made of wood.

SAM'L KIMBER, & CO.,

59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846. [1y4]

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
68 Broad St., New York.

Jan. 2. [1y4]

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45

Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

ja45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

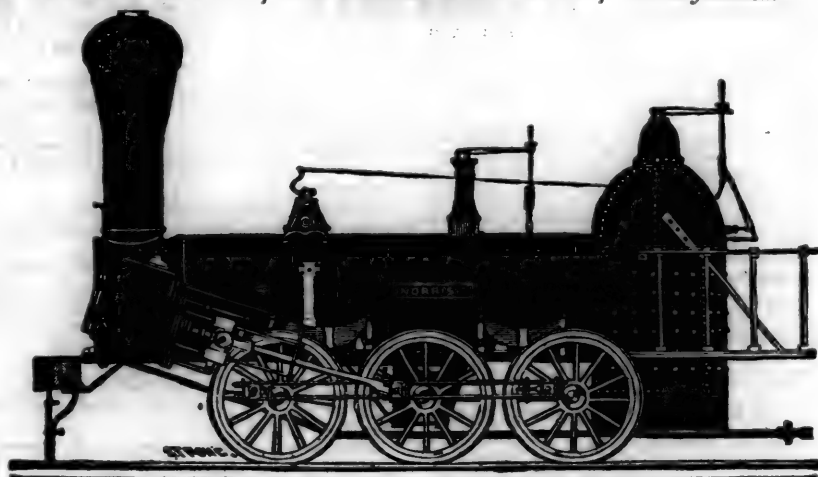
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10d

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46d



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches	Diameter of	Cylinder,	× 20 inches	Stroke.
"	2,	14	"	"	× 24	" "
"	3,	14½	"	"	× 20	" "
"	4,	12½	"	"	× 20	" "
"	5,	11½	"	"	× 20	" "
"	6,	10½	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**,  
a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia. 28th

**VALUABLE PROPERTY ON THE MILL** Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.**, or to **CURTIS, LEAVENS & CO., 106 State st.** Boston, or to **A. & G. RALSTON & Co., Philadelphia.** ja45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 600 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLANS.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets,

**PHILADELPHIA.**

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**PATENT INDESTRUCTIBLE WATER**

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**THE SUBSCRIBER IS PREPARED TO**  
execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

**NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.**  
Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Andros-coggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June. Satisfactory surities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston, May 8, 1847. 4121

**THE SUBSCRIBERS ARE PREPARED TO**  
execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**CONCORD RAILROAD.—PASSENGER**  
Trains in connection with the Lowell & Nashua Railroads, run daily between

Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

N. G. UPHAM, Supt.

**NEW YORK AND ERIE RAILROAD LINE**  
SUMMER ARRANGEMENT. For passen-

gers, twice each way daily, (except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 23, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For MILK—Leave Otisville at 5½ o'clock, morning and evening.

For FREIGHT—The barges "Samuel Marsh and Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

H. C. SEYMOUR, Supt.

**WESTERN RAILROAD.—ON AND AFTER**  
Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.  
Albany at 7 1-4 a. m. and 5 p. m. for Boston.  
Springfield at 8 1-2 a. m. and 1 p. m. for Albany.  
Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.  
The trains for Buffalo leave at 7½ a. m. and 7 p. m.  
For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a. m., 1 and 3 p. m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Supt. and Eng'r.

C. A. SEAD, Agent, 27 State street, Boston.

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington.—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Supt.

**NEW YORK & HARLEM RAILROAD**  
CO.—Summer Arrangement.—On and after

Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—Freight train at 1 p.m.

Returning to New York, will leave—Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m., 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c., to White Plains 50c. 25tf

**LONG ISLAND RAILROAD COMPANY.**  
Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4½ p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

DAVID S. IVES, Supt.

**PATERSON RAILROAD**  
Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at New York at

8 o'clock a.m. 9½ o'clock a.m.

11½ o'clock a.m. 12 1-4 o'clock p.m.

4 o'clock p.m. 5½ o'clock p.m.

On Sunday, 9½ o'clock a.m.

8 o'clock a.m. 5½ o'clock p.m.

4 o'clock p.m. Office 75 Courtlandt St.



**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 p.m.  
Arrives at.....9 a.m. and 6 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**  
Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....3  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Supt.  
Ticket Office, 63 North st.  
31 ly

**BOSTON AND MAINE RAILROAD.**  
Upper Route, to Portland and the East.

**SUMMER ARRANGEMENT,**  
April 1, 1847.

**PORTLAND TRAINS.**  
Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**  
Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**  
Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**  
Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**  
Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.  
Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Supt.

**NORWICH AND WORCESTER RAILROAD.**  
Summer Arrangement. Change of

Hours. Commencing on  
Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4 p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat.—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Supt.

**PHILADELPHIA AND READING RAILROAD.**  
Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A.M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and \$3.00	
" " Reading, 58		2.25 and 1.90	
" Pottsville 34		1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

**Summer Arrangement.**

Philadelphia for Baltimore...8 a.m. and 10 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. No line on Sun.—Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.**  
On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.

**NEW YORK AND PHILADELPHIA RAILROAD line—direct.**  
Via Newark, New Brunswick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

**LITTLE MIAMI RAILROAD.—OPEN**  
TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanewville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

**FARE—From Cincinnati to Lebanon....\$1 00**  
" " " Xenia.....1 50  
" " " Springfield...2 00  
" " " Columbus...4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47½ W. H. CLEMENT, Supt.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 19 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances.

**LEXINGTON AND OHIO RAILROAD.**  
Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1.25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35ly

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic .. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62 1/2
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 or 100lbs. 35	
Crockery, per cubic foot.....	0 15 "	" 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods ..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime).... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculumbia.....\$2 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent. 1y25

**GEORGIA RAILROAD. FROM AUGUSTA** to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaulla River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga and Dalton. 50 miles.	Between Charleston, Oothcaloga and Dalton. 55 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. \*44 1y

**GREAT SOUTHERN MAIL LINE!** VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chataanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

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PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 27.]

SATURDAY, JULY 3, 1847.

[WHOLE No. 576, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, July 3, 1847.

### A Substitute for Oil in Machinery.

Experiments are being tried upon the New Jersey railroad to test the merits of a substitute for oil on the axles of the cars. The substitute used is cold water. It is applied to the axletree by means of a small wheel, armed with buckets, and enclosed within the box that confines the end of the axle and contains the water. Its operation is similar to that of the trough of water under the grindstone, and the greater the velocity of the wheel, so much the more completely is the end of the axle buried in water.—The New York Post says:

"After running the car to which it is applied, 15 miles, for instance, at the high speed of a swift train, we found the water in the box as cold as when it was put there, the end of the axle was without any perceptible degree of heat, and the water had no more discoloration than might have been caused by the dust in the box. Fifteen miles, run at high speed, was sufficient to test the experiment, and such were the results. The principle upon which the patentee bases this application of cold water is, that the heat or electric influences formed at the extremities of the axle are dissipated or conveyed away by the water, just as the atmosphere and the rain convey the electricity of the heavens to the earth. In an economical point of view, the successful application of water to machinery as a substitute for oil will save to the State of New York annually, as it is estimated, nearly two hundred thousand dollars."

### Anthracite Coal Burning Engines.

We understand that Mr. Ross Winans, of Baltimore, has, with an engine of his construction, completed several very successful trips over the Beading railroad, with the entire use of anthracite coal as a fuel. The loads carried, as well as the time expended in taking trains over this road have been quite equal to the best performances made by their wood burning engines. On Friday last we understand she took a train of 90 loaded cars from Schuylkill Haven to the Falls Bridge, 84 miles, in 10½ hours, this is considered better than an average trip for the engines on this road.

Mr. Winans has long labored to perfect the burning of coal in locomotive engines, and for several years past has been building engines for the Baltimore and Ohio railroad company, which burn with complete success the bituminous coal of the region traversed by that road. The success of his engines on the Reading railroad will doubtless add to his well-earned reputation as an engineer, and be a source of much gratification to all railroad companies desiring to make use of anthracite coal as a fuel. We hope soon to be able to lay before our readers a full account of this engine.

### Newcastle and Wilmington Railroad.

We find the following advertisement in the *North American* of this morning, accompanied by an appropriate notice. We give them a place in the Journal, in the spirit of doing a service to the cause, and in the hope of promoting this particular object, as we consider it a very important one.

**NOTICE.**—The undersigned, Commissioners appointed by an Act of the Legislature of the State of Delaware, to receive subscriptions to the Capital Stock of the "NEWCASTLE AND WILMINGTON RAILROAD COMPANY," hereby give notice, that books will be opened for that purpose on MONDAY, the fifth day of July next, at 10 o'clock, A. M., at the Exchange, in the city of Philadelphia, at the Hotel of John Hall, in the city of Wilmington, and at the Hotel of Isaac H. Register in the town of Newcastle.

JOHN A. BROWN,  
J. C. DU PONT,  
PHILIP REYBOLD,  
WILLIAM COWPER,  
ELIHU JEFFERSON,  
ANDREW C. GRAY.

June 29, 1847.

The editor of the *North American* says, "We invite attention to the advertisement in another column, of the Commissioners of the Newcastle and Wilmington Railroad Company, noting their intention to open the books to receive subscriptions on

Monday next, at Newcastle, Wilmington and Philadelphia. The project of this road appears to be of considerable interest to our business men of Philadelphia, and we might add to our friends in Wilmington, as it will complete an important connection for the commerce of both with the winter harbor at Newcastle. It is believed that it will prove of value as a lateral route or feeder to the Wilmington and Baltimore Railroad. The whole route is described as being of less than four miles in extent, and over excellent ground for the purpose."

### Strawberries and Milk.

A letter from H. C. SEYMOUR, Esq., superintendent of the New York and Erie Railroad, to Mr. Marsh, the Secretary, says:

"The milk train of Tuesday night (22d instant) took to New York 80,000 baskets of strawberries. These baskets are intended to contain one pint each; but say that three baskets contain one quart, which is quite within bounds. Then we had 26,667 quarts or eight hundred and thirty-three bushels. These strawberries will no doubt weigh 65 pounds to the bushel, but say 60, then we had twenty-five tons of strawberries alone. The boxes and baskets weigh as much more, so that the freight was at least fifty tons. By the same train we had 28,000 quarts of milk, which weigh (a pint a pound) twenty-eight tons, and including cans, 35 tons; making a freight of eighty-five tons of strawberries and milk. The milk by both our trains equals fifty tons (50,000 quarts) daily; and including cans, 63 tons. The Rockland county people receive nearly \$3,000 a day for their strawberries."

The New York Journal of Commerce remarks—"The value of such an avenue of communication to the city, can scarcely be estimated. It gives us the good things of the country in cheapness and abundance."

On Thursday, the 24th, 52,492 baskets of strawberries were received in New York by the Erie Railroad.

Twenty-eight thousand quarts of milk per day is ten million, two hundred and twenty thousand quarts a year, which, at six cents a quart—the average price previous to the opening of the New York and Erie Railroad—amounts to \$613,200 per year, for an inferior article; but since the opening of this road the average price of good milk has been four cents—making an annual saving of \$204,400 to the people of the city on milk alone!! to say nothing of the strawberries."

If such advantages result to the city from one item of provisions, when the road is only one-fifth completed, what may not be anticipated when the

communication is opened to the lake and to the fruitful west? Who can estimate them? The economy of living and of transportation alone will be equal, in five years, to the entire cost of the road, even if it exceeds ten millions of dollars.—[Ed. R. R. Journal.]

#### Harlem Railroad.

The President and Directors of the New York and Harlem Railroad, accompanied by several members of the press, made a trip to Croton Falls on Monday, June 1, to celebrate the opening of their road to Somers. In spite of the unpleasant weather the trip was an interesting one. The road is now completed to Croton Falls, fifty-two miles from the City Hall terminus. The road from White Plains to Croton Falls is equal to any in the Union, being laid with the T rail. The Directors intend laying a double track from Harlem to Williams' Bridge, to which point the road will be immediately completed. At Williams' Bridge it will be intersected by the New Haven road. At present four trains, two for passengers and two for freight, pass over the road daily, one of each in the morning and one at evening. The amount of travel and freight is already considerable, and especially of produce brought in from Westchester and Orange counties.

The future prospects of the road are flattering, and passing as it does through a delightful country within four miles of Mayapoc and the Croton Dam, two favorite summer resorts, it must induce a large share of travel. A fine dinner was served up for the jaunt at Croton Falls, and the whole company returned in the evening to the city, highly pleased with their trip and the capabilities of the road.

We are glad to know that our esteemed fellow-citizen, CHARLES PASHALL, Esq., has recently been elected President of the Company.

#### Atmospheric Railway.

"In another column," says the editor of the Mining Journal of May 22d, "will be found a description of *Clarke and Varley's Resilient Atmospheric Railway Tube*, with some remarks on the working of the experimental line of 450 feet of a 15 inch tube, now in operation daily near the Poplar Station on the London and Blackwall railway. Among several hundred gentlemen, connected with railways and scientific pursuits, who have already inspected this splendid model, we understand not a single objection of moment has been even raised against the principle—its merits being so evident to the casual observer, and affording the most convincing proofs, that whatever difficulties and objections the atmospheric principle has had to struggle against, it has arisen from an erroneous form of construction, and that the system under notice leaves nothing to be desired. To those who are aware of the continuous difficulties which have been, and are met with on the lines of railway which have been constructed on the atmospheric principle in continuing a vacuum, it will be surprising when we inform them that with only one valve of one air-pump at work, an exhaustion of half an inch of mercury, or about one-quarter of a pound pressure per inch on the piston is sufficient to start the carriage, with the passengers it contained, weighing nearly three tons; and that, on rising the incline of 1 in 60, the pressure never exceeds one pound per square inch. Of course, the speed was slow; but these experiments were made to show the extraordinary small amount of friction, and the absolute freedom from leakage which must exist in the tube, or such results could not be obtained. Indeed, although the patentees, and all who have watched the progress of the improvements

which have been gradually making in the construction of the continuous opening in the tube, during the past three years, expected the most favorable results, they have been completely astonished at the perfection which the model exhibits, now it is in full working order. The patentees invite the most searching investigation, and an inspection will well repay the trouble of a visit."

#### Seaboard and Roanoke Railroad.

The Norfolk Herald states that the Trustees of the Town of Portsmouth have purchased the Portsmouth and Roanoke Railroad from the Board of Public Works of Virginia, under the act passed at the last session of the Legislature, for the \$50,000, upon a credit of six years, and that they have sold the road to Messrs. Henshaw & Co., of Boston. The new company will immediately lay down T rails from Portsmouth to Weldon, and will also extend the road thirteen miles further in order to connect with the Raleigh and Gaston Railroad.

#### Niagara and Detroit Railroad.

In the Legislature of Canada last Friday evening, there was an animated discussion on this bill. For the second reading 34, against it 19—the members of the Government being all in the minority.

#### An Old Engine.

This "old fellow" holds his own well, and shows that he came of a good stock.

"There is now in full work, at the Tredegar Old Mill Iron Works, a steam engine which was erected by Boulton and Watt, upwards of 40 years ago, and is now nearly as good as ever. A few weeks ago it turned out, between one o'clock on a Monday morning and eleven o'clock on the following Saturday night, no less than 566 tons of rails, rolled and finished, and 289 tons of puddled bars—total, 855 tons."

#### Institutions for the Promotion of Science.

We have copied largely from the proceedings of a new institution for the promotion of mechanical science, recently established in Birmingham. The proceedings of this new society, or "Institution," are thus spoken of by the editor of the Mining Journal.

"The success of institutions, established for the promotion of scientific knowledge, is at all times highly gratifying to every one who takes an interest in the progress of human advancement, and the improvement of the arts to the wants and comforts of life. The report of the proceedings of the meeting of the members of the Institution of Mechanical Engineers, held at Birmingham on Monday last, will be read with interest, as recording the fact of its being now securely established, and bids fair to be, for the central metropolis of this engineering country, what the Institution of Civil Engineers is to London—patronised by Mr. Robert Stephenson, and supported by a host of influential parties in the midland counties. Several papers on important subjects were read at this, their second meeting, which augurs well for their future career—by Mr. Buckle, on the Use of Fan Blast, as applied to Manufacturing Purposes; another paper by Mr. Jones, of the Bridgewater Foundry, on the same subject, on which an interesting conversation ensued, relative to its application to the smelting of metals; one by Mr. J. Wilkinson, on the Economy arising from Introducing Heated Air into the Boiler of the Steam Engine; and by Mr. Crawford, of Birmingham, on an Improvement on Railway-carriage Brakes. The whole proceedings were highly satisfactory and encouraging, and the formation of the institution will give an opportunity to many engineers and manufacturers recording their improvements and inventions at the meetings in Birmingham, when it might be inconvenient to attend at the Institution of Civil Engineers in London. We heartily wish them every success.

#### THE MINING JOURNAL

AND AMERICAN RAILROAD GAZETTE.

A new candidate for public favor, with the above attractive title, recently made its appearance in New York, and a number was sent to us for our inspection, and "exchange," but before we had an opportunity of examining it—so interesting was it found—some one, interested in mining operations perhaps, availed themselves of a too common custom at hotels, and in editorial closets, and appropriated it to their own use, and thus compelled us to write to the editor for another copy which was duly received, but at a period too late for our last number. In size and appearance it very much resembles that excellent work—the "London Mining Journal." This, the first number, is of course made up with much care. Its introductory article is well written, and its correspondence and selections are extensive and interesting; and it bids fair to become a useful laborer in the cause. We therefore give to it the right hand of fellowship, and wish it, editor, proprietor and mining friends, God-speed.

That our readers may judge of its objects and claims, we give its leading article entire, and make several other selections from it, and now give notice that we shall make free use of its contents when we find them in our line and to our mind.

The editor, Mr. John E. Grant, says in his introductory article that—"In presenting the first number of THE MINING JOURNAL to the public, we shall make a few remarks to enable our readers to judge for themselves of the merits of the enterprise, and the value and usefulness of the paper. We intend and hope to make it useful to our readers and profitable to ourselves. We propose to make no promises we cannot perform, nor awaken expectations we cannot satisfy. Aware that we are entering upon the discharge of a difficult and laborious duty, we must bespeak the kind indulgence of our patrons, tendering to them the assurance that our efforts shall ever be directed to make this Journal all that we herein propose to make it, and to add to its usefulness, from time to time, as larger experience and more thorough knowledge of the wants of the mining and kindred interests of the country shall enable us to do it.

"The paper will be devoted to the subject of mines and mining metals and minerals, and in other respects conducted upon the plan, (so far as we are able to adopt it,) of the celebrated Mining Journal and Railroad Gazette, of London. Attention, of course, will be given to the smelting and manufacture of minerals and metals when raised from the mines. All mines, whether of iron, lead, copper, silver, gold, coal, etc., will receive attention; the various modes of smelting metals, or working or manufacturing them, and the most approved methods of working, alloying, or using them by chemical or other means used in the arts, will be treated of in our columns by ourselves and others, with care and impartiality.

"In former times, and in a different state of society from that which now exists, when the whole circle of the useful arts was within the geographical limits of less than one-half of the eastern continent, and animal power was used for most of the purposes of transportation, but a small comparative amount of metals was required for the uses of human life. The discovery of this continent, the introduction of a more intelligent and higher civilization, the discovery of steam power, and the various inventions and improvements which have followed, upon land and sea, have produced wonderful changes in the business of the world, and extended widely



the uses of the metals in the service of mankind. In iron and lead, the reduced price shows that the supply has kept pace with the demand, while in copper the advanced and still advancing price gives evidence that the demand has increased upon the supply. Many of our citizens will recollect the time when most, if not all the iron and lead used in the United States was imported from other countries, and with what suspicion and fear our citizens embarked in any enterprise which had for its object the mining and smelting of those metals. The wonderful discoveries of lead on the Upper Mississippi, and the immense quantities mined and manufactured, have astonished all who have given attention to the subject, either in Europe or America. The immense deposits of iron ore, in various parts of the United States, and the discoveries continually being made, are not less surprising; and if not so much now the subject of remark as formerly, it is because the public ear has become so familiar with the reports of new discoveries that they have lost their public interest. The fact of a discovery of a mountain of iron ore, an ore-bed covering thousands of acres, or a coal field extending scores of miles, now creates but little attention and no excitement.

"The discovery of the immense deposits of copper in the region of country bordering on Lake Superior at first attracted some attention, and afterwards created considerable excitement; but the excitement over, the fact of their existence was added to the many evidences of the great mineral wealth of this country. The development of these mines is left now to private enterprise and ingenuity, and promises profitable rewards. To aid that portion of our fellow citizens who are, or who may be hereafter engaged in exploring for, locating and working these mines, we shall place before them full and correct information as to the discoveries of new mines, the annual yield of these discovered, the improvements made from time to time in tools and machinery used in the mines, the discoveries of new, and the improvements of old, methods of smelting and manufacturing the metal, and the new purposes to which the metal has been or can be applied.

"It is our intention to give considerable space in the Journal to the construction of railroads and steam engines, and other machinery of which metals may form any considerable part.

"The information we are able to obtain, from time to time, from the European mines, the value of ores and metals there, the value of stocks, reports from mining companies and mines, when the same are made public, will be given; and in general the diffusion of such correct information as may be thought useful or instructive to those engaged in mining or connected with mining interests, will be the object of THE MINING JOURNAL AND AMERICAN RAILROAD GAZETTE."

#### Night Telegraph.

At a meeting of the Scottish Society of Arts, on the 26th of April, a communication was read by Mr. J. Stewart Hepburn in relation to "Night Telegraphs by colored lights."

This telegraph consists in the employment of various combinations of the only two colors, red and white, which are distinctly visible at considerable distances. This is effected by the use of a lamp, enclosed in a hexagonal screen, which revolves horizontally on pivots; four of the compartments being opaque, and two furnished with lenses, one red, the other colorless. By the turning of the screen the light can either be masked or shown of a red or white color as the particular combination may require. Three such lamps are hung

on pivots on an arm or beam 15 or 20 feet in length, turning vertically on its centre on an upright post, and made to assume four definite positions, horizontal, vertical, and diagonal, rising from the left or falling from the left. The different positions of this arm, together with the varieties in color and order given to the lights by this construction of the lamps, afford at least fifty distinct combinations, to which numbers, or the letters of the alphabet, and arbitrary significations adapted to the particular uses of the telegraph, may be assigned.

At the same meeting was also read a "description of a new method of overcoming an Incline of 1 foot in 12, with a new Locomotive Reversing Steam Engine." By Mr. DANIEL ERSKINE.

In addition to the small wheels keyed on the axle outside of the usual large wheels of locomotives, and connected by connecting rods, Mr. Erskine has a toothed pinion on each side of the engine, dropping down between the flange of the small wheels and the large wheels, which, on the locomotive coming to a steep incline, say 1 foot in 12, works into strong pins or bolts, fixed on the inside of the raised rail. The engine and carriages all the while running on the small wheels, by which their whole weight is borne, and the large wheels acting as fly-wheels, leaving the toothed pinions nothing to do but to work in gear with the pins or bolts, thereby effectually preventing slipping. It was shown, by a beautiful working locomotive of about 9 lb. weight, made by Mr. Erskine, and fitted with his reversing pivot valve, that by this means it easily ascended an incline of 1 foot in 10; and on an incline of 1 in 16, the small wheels themselves, without the toothed pinion, easily accomplished the ascent; whereas the engine could not attempt the ascent with its ordinary larger wheels. It was stated that this is not the first time a rack and pinion has been proposed on the inclines of railways, but that it has never been proposed in the way now done by Mr. Erskine, by whose method the power is so vastly increased by being brought to act so near to the centre of the wheel.

#### Atlantic Screw Propeller.

At the meeting of the Institution of Civil Engineers, London, May 18, a paper was read by Mr. J. Grantham, entitled "an account of the Sarah Sands, and other Iron Vessels, with direct-acting Auxiliary engines and screw-propellers."

The object of the paper was to show, that a propeller might be constructed of such dimensions that the number of revolutions it would require to make in order to obtain a high velocity would not much exceed that of the ordinary paddle-wheel, and that hence the usual marine condensing engine might be applied direct to the propeller shaft, without the intervention of a secondary motion. It appeared from the statements in the paper, that this opinion was found to be correct, and that Woodcroft's expanding pitch screw-propeller was the best form that had hitherto been employed. In a paper read to the Institution, upwards of three years since, Mr. Grantham gave his views on this subject, and several vessels had been since built—the results of the trials of which were communi-

cated to the meeting. The principal of these were the *Emerald* and *Diamond*, three-masted steamers, of 400 tons, and 60 horse power; the *Nautilus*, of the same dimensions; the *Antelope*, of 600 tons, and 100 horse power; and the *Sarah Sands*, of 1000 tons, and 180 horse power. Drawings of these vessels were exhibited to the meeting. The capabilities and performance of these vessels were described in the paper, but particular notice was taken of the last named vessel, which had performed a most successful voyage to New York during bad weather, and adverse winds. The passages made by the ordinary New York liners, which were out at the same time, were very long, averaging 48 days each, and the Boston and Liverpool steamers were much longer than usual on their passage. The *Sarah Sands* used her steam about 17 days, and sailed the remainder, making her voyage in 20 days 10 hours. On her arrival she had about enough fuel remaining for four days' steaming. The paper did not enter minutely into the particulars of the screw itself, as it was considered that too much attention had been given to that branch of the subject to the exclusion of the consideration of the plans for working it, which, after all, had been the stumbling-block to the general adoption of the system. It was necessary with the screw, the theory of which, as a propeller, was so little understood, to proceed with experiments perseveringly in one direction, as variations in the results were frequently attributed to causes which really did not exist. After describing several interesting details, the paper concluded by expressing a desire that engineers should examine the drawings of the system laid before the meeting, and endeavor to add to the stock of information already obtained.

After the paper was read, Mr. Grantham added some facts which he had recently gathered, and which strongly confirmed what had been stated. The *Diamond* had recently made a very rapid passage to Madeira, deeply laden; but, during the whole passage, the engines maintained a very moderate speed, and quite removed the impression that under such circumstances they would run too fast from their being connected directly to the screw.

An account of the last successful voyage of the *Sarah Sands* was also given, and it appeared that, in spite of most severe gales, which had driven back almost all other vessels, her passage had been made in the most satisfactory manner. In the discussion which followed, several engineers of eminence expressed themselves much pleased with the facts brought forward in the paper, and perfectly concurred with the views put forth. The principle of the following current of the ship, which had a material influence in increasing the efficiency of the screw, was alluded to, and a conviction was expressed that the screw would eventually supersede all other means of propelling vessels on long voyages.

An account was given also of the auxiliary screw steamers that ply between London and Rotterdam, and some interesting facts

were given of the power which these vessels possessed of working to windward in bad weather. The subject was closed by a discussion upon several points that had been started, relative to the size of the screw, the mode of disengaging it, and the prospects which were held out of the final success of the principle.

#### Mining on Lake Superior.

We find the following remarks upon this subject in the Mining Journal recently established in New York. They are well worthy of attention from those who have a desire to embark in the business.

"The remarkable discoveries made in the section of country in the vicinity of Lake Superior, has excited a considerable share of the attention of those engaged in mining. There has been, no doubt, much exaggeration in many of the statements made, in relation to the discoveries, and the speculation in mining stocks was pushed to an extent unwarranted by the actual state of affairs. In the fervor of excitement, when every returning visiter to the country brought information of new and astonishing discoveries of veins of pure copper, of great width and of unknown length with here and there rich specimens of pure native silver, suggesting the promise of immense deposits of that metal, it was not strange that the sober second thought idea as to the correctness of the reports and the title to the land, should be overlooked for the moment. Nor was it strange that when the excitement was over, and the fact established that without the action of congress, no title could be obtained to the lands, that the depression should be as great as the excitement had been high. Time and more numerous thorough examinations have now established the fact, that in all human probability, the Lake Superior region of country, including the north and south shores, far exceeds in richness and mineral value, any section of equal extent in any other country. The laws passed at the last session of congress, ordering the sale of mineral lands on Lake Superior, and giving pre-emption right to actual occupants, has placed the subject in a different light, and in a tangible shape. Investments can now be made with security, so far as the title to the land is concerned, and the capitalist who invests his money, and is successful in doing it upon a good mine, can rest secure in the certainty that whatever he may find, be it ever so valuable, will be his own. The facilities for transportation and travel have diminished, if not the distance, the time necessary to overcome the distance, so that the Lake Superior country may be said to be almost at our doors.

By the arrangements now made, and in progress, the passage from New York to Copper Harbor, can be made in from five to six days, at an expense but little exceeding thirty dollars; and contracts for the delivery of ore, in any quantity, at New York or Boston, from any point on the lake shore, below the mouth of the Ontonagon, can be made at from fifteen to twenty dollars per ton. We think we are safe in saying that, taking into consideration the extraordinary salubrity of the climate—the immediate vicinity of the mines to water communication—the richness

of the veins, and their proximity to the surface—the position of many of the mines in elevated situation, convenient for draining—the large amount of wood and timber suitable for coal and fuel, in the immediate vicinity of the mines—the Lake Superior country offers greater facilities for a profitable working of mines than can be held out by any other country on the globe. The expense of transporting, from points on Lakes Erie and Michigan, the provisions necessary for the workmen at the mines, the increased prices of labor, and the extra expenses incident to all new undertakings, will no doubt operate as a serious drawback upon the profits for a few years; but as the country in the vicinity of the mines becomes settled by an agricultural population, and the knowledge of the mines has become extended so as to induce immigration from foreign miners, these obstacles will be overcome.

But, after all, we do not intend to urge our readers to embark with a rush in mining in the Lake Superior country. The business is a new one to most of those engaged in it, and in all cases experience is the best and safest guide. We would suggest, then, to those engaged in mining, the expediency of moving, in the first instance, with care, employing but a small force at a time until a thorough examination of the position and value of the veins and ores contained in them, has determined the best point to drive the drifts or sink the shafts. To those who propose to invest in the mines, we would suggest the policy of dividing the investments among several mines, always exercising due care to ascertain the present prospects and value of each mine.

The management of the mine, too, is a matter of great moment, as the mere fact of having a good mine will be of but little importance, if the labor is misdirected, and the money lost by improper, careless, or bad management. We suggest a division of the investments among several mines, from the belief that discoveries of silver thus far, go to warrant the expectation that deeper explorations will result in the discovery of rich deposits of silver. This may not, and probably will not, occur in all the mines, but is very likely to happen in some; and as most of the mines have more or less silver in them, it is as likely to occur in one mine as in another. By a division of interest among several mines, the chance of obtaining a silver mine is increased.

The money must be made by a skilful working of the mines, and by raising the greatest amount of metal with the least possible expense; but a large amount of money will be made, incidentally, by the rise of stocks, caused by the increase of value in the mine. As a general rule, then, the purchase of stocks in mines just opening, and when the prices will be low, although attended with some more risk, will no doubt be as good an operation as the investment, at high prices, in older mines. Even in the present crude state of knowledge upon the subject, it is not difficult to determine as to the promise of a vein,—and the purchaser of stocks in any

mine should be correctly informed as to the appearance of the vein.

#### Gun Cotton for Blasting.

This new article seems to be attracting much attention. Numerous experiments, in comparison with gunpowder, have been made for blasting in tunnels and on other works, which should be understood by railway engineers and contractors—therefore we extract freely from our English Journals in relation to it. The following is from the Railway Chronicle of 29th May.

On the 20th of May, Mr. Wheeler, as representative of the Messrs. Hall, gunpowder manufacturers, and proprietors of the patent for Schonbein gun cotton, attended in Birmingham for the purpose of testing the comparative powers of gun powder and gun cotton in the mining operations of the Birmingham, Wolverhampton and Stour Valley required for the tunnel at present in progress under the town. The following is a brief description of the state of the tunnel and of the result of the experiments:

The length of the tunnel when completed will be about 850 yards, extending from Suffolk street to the canal, at the Crescent, all through the new red sandstone. At the Suffolk street end, about 40 yards have been completed, and two lengths have been got out by open cutting. In the excavation of this open cutting, one series of experiments was made. At a distance of a third of the length of the tunnel from this end, a shaft has been sunk in the old canal wharf, as also an air shaft, and at this shaft about 100 yards have been completed. Another shaft has been sunk at Bingley, and a heading had been commenced, but in consequence of complaints from parties in the neighborhood that their property was injured by the vibration caused by the blasting, the directors had stopped the operations, to try what other means less objectionable could be adopted. The first experiment was tried at Bingley, where two holes of equal size were driven, and charged—one with eight ounces of gun cotton, and the other with fifty ounces of gunpowder. The effect of the two was nearly alike, but the noise and vibration from the gun cotton were far less than from the powder. At the open cutting two experiments were tried; two holes, each 5 feet 6 inches deep, were loaded—one with ten ounces of cotton, and one with fifty ounces of powder. In this case, the noise and vibration were less from the cotton, but the ground displaced by the powder much greater than by the cotton.

Again; two holes, each 5 feet 6 in. deep, were charged—one with fifteen ounces of cotton, and one with sixty-three ounces of powder; and in this case the cotton displaced a much greater amount of ground than the powder. It should be remarked, that at the open cutting, the rock being so near the surface, is of a much less firm character than at the other points, where the rock is 50 or 60 feet below the surface. In the canal wharf the holes were 4 feet deep for the cotton and 5 feet 3 inches deep for the powder, and the charges sixty-three ounces of powder and thirteen of cotton. The cotton displaced less than the powder. In all cases the vibration



and noise from the cotton was less than from the powder, with this additional advantage, that as no smoke resulted from the cotton the miners were able to resume their work immediately after the shot, which is seldom the case with powder, especially in dull weather, such as the last week here, during which they were obliged to remain out of the tunnel for one day, in consequence of the accumulation below, although there is an air shaft in communication with their work. From the above experiments it was considered that in such ground as this tunnel goes through, the same work might be done by using one-fifth part of the weight of gunpowder—that is, that one ton of gun cotton would perform the work of five tons of powder. Now, powder costs £44 per ton, and gun cotton 3s. a pound or £336 per ton, leaving a difference in favor of powder of £116 in every five tons of powder; and it is a matter to be decided only by further experiments, whether the absence of smoke and the diminished amount of noise and vibration are worth purchasing at this increase of price. It is evident, however, that the only true means of testing the relative efficiency of the two would be to get out one complete length, through the same stuff, with each, and compare the amount of power and of cotton required. The comparative expense of the two would then be known most accurately.

#### Institution of Mechanical Engineers at Birmingham.

This "Institution" appears to direct its attention particularly to mechanical improvements. At their meeting on the 28th of April, "in the absence of George Stephenson, Esq., President, Mr. McConnell was called to the chair, and the minutes of the last meeting having been read by the Secretary, (Mr. Archibald Slate,)

The Chairman rose and said, the present meeting was one of the four ordinary meetings provided by the rules of the Institution, and required to be held on the fourth Wednesday in April. Since the last meeting, the Council had met on several occasions, and after discussing various subjects of interest to the Institution, they invited the London and Manchester branches of the body to meet them, consider their proceedings, and confirm them if approved of. The gentlemen from Manchester accordingly attended a meeting of the Council, on the 21st of April, confirmed the past minutes of Council, and suggested some further improvements in the management of the Institution. The business of the present meeting was to confirm the minutes of the last general meeting, to receive new members and communications, and consult as to future operations; and here, perhaps, before they proceeded further, he might be allowed to say he had a very agreeable piece of intelligence to communicate, which he was sure would be very gratefully received by the meeting. It was the announcement of a handsome donation of 100*l.* to the Institution, by their worthy and highly esteemed President, to whom he begged leave to propose a vote of thanks for this additional mark of his estimation of the Institution, which was unanimously assented to.

The Chairman stated that the Council was of opinion that the members ought at once to proceed to work and supply information on useful subjects; and, in order to make a commencement, they had forwarded the following suggestions to each member of the institution:—

- "1. The best form of railway axles and wheels.
- "2. The best description of engine and mill for manufacturing iron.
- "3. The best form of barker mill or turbine.
- "4. The best form of luggage engine for narrow gauge.
- "5. The most economical stationary steam engine, with coal at 6s., 12s., and 24s. per ton, taken in a commercial point of view.
- "6. The best form of air-pump valves.
- "7. The best high pressure marine boiler.
- "8. The best description of pumping engine for the thick coal district of Staffordshire.
- "9. The flow of water through straight mains and curves."

The following papers were then read:—

1. "*Apparatus to be applied to railway carriages for lessening the dangerous effects of collision on railways.*" By Mr. E. CHESHIRE.

This method has been described in the Journal for September last, p. 285, it simply consists in applying beneath all the length of the body of each passenger and other carriage of every train an inflexible unyielding rod, which is termed a "safety-buffer," of wrought iron, and a tube plugged with wood, supported in suitable bearing-sockets beneath the framework of the carriage, at the middle of the breadth thereof, and left loose in those sockets. The safety-buffer terminates at each end with an enlarged head like those of ordinary buffers, and the heads of the safety-buffer of each carriage correspond to the like heads of the safety-buffer of the preceding and following carriages. When the usual coupling links are screwed up to bring the ordinary buffer heads of the several carriages into elastic contact one with another, as is usual, there will be a vacant space between the safety-buffer head of each carriage and that of the next adjacent carriage, varying from three to six inches, more or less, according to circumstances, and the safety-buffers will not have any effect or operation in the ordinary course of travelling, but only in case of a collision. The safety-buffers in the van, at the hinder end of the train, and in the tender at the front end, are not to extend throughout the whole length of those carriages, and need not have any endway motion, but may be firmly fastened to the framework of those carriages, or they may be applied against strong elliptical springs, placed end to end for expending some of the force of the collision. The van is to be lower than the passenger and other carriages, in order that its centre of gravity may be nearer to the level of the rails. The van at the hinder end of the train is to have its ordinary buffers with easy yielding springs, which, with the same force applied to them, will allow those buffers to move through a much

greater space in respect to the van than the ordinary buffers of the carriages of the train, so that, in case of a collision from behind, the ordinary buffers of the van being so yielding, they will not act with much force against the corresponding buffers of the hindmost carriage of the train.

*Remarks.*—Mr. W. ROBINSON, of London, said, it might be advanced against the proposed improvement, that every rod being six inches less in length than the side buffer, would lose six inches in every carriage; consequently, supposing a train to be composed of, say 50 carriages, it would require 25 feet for the stroke of the last buffer. It might also be objected that the rod would double up; four or six inches in diameter was not sufficient to take the amount of force imparted by the collision. He would estimate that it would require 13 feet diameter to oppose the force of the shock imparted to it.

Mr. CHESHIRE replied, that the momentum was communicated to the first rod, and through each individual rod to the last instantaneously, and through it to the hinder van, just as in the case of a number of billiard balls placed in a row. When the first was struck, the last was driven away with all the impetus communicated to the first, leaving the intermediate balls perfectly at rest.

A member suggested that it would require 300 tons to double up a rod four inches in diameter.

Mr. CHESHIRE—I take it at that calculation, and say, consequently, supposing the momentum of the collision to be greater than that, it was quite evident that 300 tons must be taken from the amount of collision imparted to the train and expended upon the van behind the train. As the stroke of the side buffer was 13 inches, it was quite clear six inches might be allowed for the stroke of the centre buffer without any injury to the passenger carriage; consequently, if 25 feet were lost in the centre buffer in a train of 50 carriages, 54 feet would be gained by the stroke of the side buffer, having a surplus of 29 feet.

2. "*Disconnecting Coupling.*"—Mr. JOHNSON, locomotive superintendent of the Manchester and Leeds Railway, produced a model of an invention for disconnecting the carriages from the engine, in the event of an obstruction on the line, or any other accident which would cause the engine to run off the rails, by a self-acting disconnecting coupling chain, which he proposed to apply between the tender and the luggage van. It was exceedingly simple and inexpensive, and might be applied to any train with a slight alteration of the present coupling crook of the luggage van or carriages. In case the engine or tender got off the rails from any cause whatever, regardless of the speed, the engine or tender would be immediately disengaged from the train, allowing the latter to remain on the line perfectly uninjured, and thereby accomplishing the object for which it was intended. He had had a working model 12 months, and during that time tried it repeatedly, and could now speak confidently of its merits.

Mr. MIDDLETON, having inspected the model, said he believed a patent had been taken out some years ago for a similar invention. He thought the plan a very good one; but he was under the impression that at the time Dr. Church's carriage was before the public, it was said that such an invention had been patented.

Mr. BEYER was also of opinion that the idea or principle of the invention was not new, as it had been proposed by Mr. Watson Buck, engineer, on the opening of the Manchester and Birmingham Railway.

Mr. RAMSBOTTOM, of the London and North-Western Railway, feared the violent oscillation of the carriages would produce the same result. He had seen carriages vibrate very much when not sufficiently tight.

3. "Railway Axles."—Mr. H. BESSEMER, manufacturer, London, produced a model of a railway axle, to do away with the necessity of covering the tire, which the inventor stated caused great wear and tear of the rails and tires, and also a tendency in the carriages to an oscillating or vibratory motion when running on a straight line. Mr. B. stated that the means by which he proposed to effect his object was by cutting the axle in two in the centre, and holding it rigid and in its place by a long coupling, with concentrated grooves, so that each wheel, and the end of the axle, could revolve independently of the other.

Mr. BEYER said an invention for accomplishing the same object had been proposed, and applied before, and in his opinion one more simple had been tried. He had seen the same idea carried out in two different ways. He questioned the desirableness of having such an invention at all.

4. "Description of a new Railway Break," by Mr. F. KNIGHT, was read, which requires a drawing to make it understood.

To be continued.

From the first number of the Mining Journal and American Railroad Gazette.

#### Lake Superior Mineral Region, Bruce Mines.

These mines, so called in honor of his excellency, Lord Elgin, are situated on the north shore of Lake Huron, opposite the island of St. Joseph, and about seventy miles below the Sault de St. Marie, within thirty hours' run by steam, from Detroit. The mine was discovered and is in charge of Capt Keating, late of the Indian Department of Her Majesty's service. Recent accounts state the quantity of ore raised at this mine, is now 200 tons, with the labor of six men. Copper ore containing 20 per cent. of copper, is valued at \$3 per ton, for each 1 per cent.: or for 20 per cent. ore, \$60 per ton. If so, the six men employed at the Bruce mines the last winter, have raised \$12,000 worth of ore.—Not a bad job.

We give below extracts from two letters, written by Capt. Keating to Mr Rankin, and published in the Detroit Advertiser.

Extract of a letter dated "Bruce Mines," }  
February 18th, 1847. }

"We commenced by uncovering about 40 feet of the vein, and getting out the surface ore which is of the richest description, and soon became satisfied that what might have

been merely a lode of ore, was a good and well defined vein, rather exceeding two feet six inches in average width. After some time spent in thus carrying down stakes, as they are technically called, to the depth of about three feet, we commenced sinking our shaft at the eastern extremity, where the rather hard rock appeared softer and more favorable. The varieties of ore are yellow copper, horse flesh, iciclesint, purple blue, and we have found of late, a considerable quantity of gray sulphuret, largely intermixed with the others. The shaft is sunk to the depth of two fathoms and a half, and, so far, has been carried down twelve feet by nine. Our pile consists of upwards of sixty tons of rich ore, the greater part of which Harris (the head miner) says, will only require breaking and will not (so good is it) require to be at all washed. Thus, you will see that, without some extraordinary occurrence, we shall exceed, by a considerable quantity, 100 tons ere we meet again. Nor is this all. Harris has discovered a vein, not far distant from that now working, of precisely the same quality, and about the same width. Upwards of a ton of copper ore, which was taken out, to test it in two blasts, leaves no doubt upon the subject. I have also been fortunate. One rainy day, having seen a partridge on going to my hare traps, I returned by a short cut through the woods, and came on a rather high ridge of rock, not more than 300 yards from the shore, and stumbled upon a magnificent vein, of fully eight feet in width. It appears, evidently, to be the continuation of that showing itself at the little point which you may remember, and where you shipped most of the ore you procured. I immediately took Harris to see it, and he was quite surprised at its extent, and proposed putting a few blasts in it to ascertain its quality.—This was done accordingly, and the result was similar to that in the former case—for, in two blasts, more than a ton was got out, of a very fine quality, and containing black copper, the yield of which is beyond that of any other ore, by the miners' account."

Extract of a letter dated "Bruce Mines," }  
16th March, 1847. }

"The courier arrived yesterday, and I received to-day your welcome letter of the 26th January last. I hasten to reply to it. Our prospects are cheering indeed. As my last letter will have apprised you of what has been done, and as every thing has been going on even more favorably than when I wrote last, our share of the matter will have been well done. We have now full 100 tons of ore of the best quality, much of it far superior to what you took down, the proportions of horse flesh being greater. We have also discovered and blasted into a vein eighteen feet wide of a similar quality, and on the same location. Our shaft is four fathoms deep, and the vein better and wider than on the top. You will, I think, be (and so are all who hear of it,) much surprised at our progress with five men, and one being always cooking, and our pile looks splendid. I would not give this location, which I think teems with veins, for any two on lake Supe-

rior. I expect to have at least 150 tons when you arrive. Each day gives continued and increasing success. To-day some beautiful specimens were brought in—crystals of spar and copper thickly intermixed, and also sulphate of barytes."

#### Annual Reports of the New York Railroads. REPORT OF THE UTICA AND SCHENECTADY RAILROAD COMPANY FOR 1846.

HON. N. S. BENTON, Secretary of State.

SIR: The Utica and Schenectady Railroad Company, in compliance with a resolution of the honorable the Assembly of the State of New York, passed on the 2d day of February, 1843, submit the following report for the year 1846, containing a statement of the various matters required by the said resolution, viz:

Length of road in operation, 78 miles.	
Cost of construction.....	\$2,189,506 10
Income from passengers as follows:	
15,390 $\frac{1}{2}$ through passengers, at \$3.....	46,171 50
108,489 $\frac{1}{2}$ " " " " 2.....	216,979 00
2,018 $\frac{1}{2}$ " " " " 1.....	2,523 12
8,765 " " " " 1.....	10,342 70
134,663 through passengers.....	276,016 32
87,155 way ".....	71,519 19
Total income from passengers.....	347,535 51
Income from freight.....	65,296 57
" U. S. mail.....	5,850 00
" other sources.....	9,713 90
Total income for 1846.....	\$428,395 98
Expenses for repairing and running road.....	167,820 82
Do, engines, cars and grading.....	75,609 70
Amount of dividends.....	160,000 00
Total expenses and dividends.....	\$403,430 52
Number of locomotive engines.....	15
An undivided interest in 42 eight wheel passage cars, 10 eight wheel emigrant, 14 eight wheel baggage and 4 eight wheel mail and baggage cars, owned by the railroads between Albany and Rochester, in all.....	70
Eight wheel freight cars.....	39
Four " ".....	61
Number of machine shops.....	1
Number of horses.....	3
Average number of men employed.....	200
Number of miles run by passenger trains.....	167,600
Number of miles run by other trains making repairs and carrying materials, etc. ....	70,488
Total number of miles run.....	238,088

STATE OF NEW YORK,  
City and County of Schenectady, } ss.  
William C. Young of the city of Schenectady, being duly sworn, saith that he is the superintendent and engineer of the Utica and Schenectady railroad and that the foregoing statement, taken from the books of said company, is correct and true in all respects, as he verily believes.

Wm. C. Young,  
Eng. & Supt. U. & S. R. R.  
Sworn to before me, this 29th day of January, A.D., 1847.  
HENRY Q. LANSING,  
Commissioner of Deeds.

REPORT OF THE SYRACUSE AND UTICA ROAD.  
To the honorable the Secretary of State of the State of New York.

The Syracuse and Utica railroad has been open for transportation for passengers for the last eight years. The company having determined to relay the road with an iron rail of the most improved form, have contracted for a considerable portion of the iron necessary, and are proceeding with the intention of laying a substantial structure adequate to the proper performance of the business required. The present wood structure has cost



the company ..... \$417,075 55  
The iron now laid thereon is the flat bar and will be useless, and therefore will be sold. It is hoped that there may be derived from the sale of it ..... 80,000 00

Leaving the sum of ..... \$337,075 55

Which has been expended for the cost of the wood structure, which in addition to a large annual amount for repairs, will be practically worn out, sunk and gone when the new structure is laid and used. The new structure, it is supposed, will cost about the same as the former, towards which, it is hoped, the old iron will pay as above, \$80,000, leaving the sum of about 300,000 to be raised by the company on its credit.

This will, when paid, reimburse the capital of the company for the equivalent amount which has been appropriated to the worn out structure. In addition to the cost of the new structure, there will be required a considerable sum for new engines, cars, etc. The demand upon the company for the transportation of property at the close of the canal, has entirely exceeded its capacity to do this business. Property destined for sale in the eastern markets in large quantities, was stopped at most points upon the line of railroad contiguous to the canal. Being practically confined to the winter months in this branch of business, it cannot be expected that the company could provide a supply of cars for this sudden and extraordinary demand when they must stand idle and go to waste during two-thirds of the year.

When the road shall be relaid with the proposed iron rail, the public will require that the trains shall be run with increased speed. In relation to this subject, it is deemed proper to refer to the following suggestions contained in the report of this company made last year:

"Very great embarrassment is experienced from the fact, that cattle are allowed to run at large, and to impede and so often delay the trains as at present. It is a serious matter, and unless more care shall be bestowed by the owners in restraining them, either at their own suggestion, or in pursuance of some proper law to be passed, it will be found very difficult to make good time upon this line. A part of our business must always be done in the night, and it is then that we experience the great hazard. The trains are frequently thrown off by them, and the danger to the persons in charge and to the passengers is often imminent. The owners always insist upon pay for their animals destroyed, without reflecting upon the great damage that they cause to the property of the company, and the more fearful injury that might ensue to passengers. If the owners will not take care of them it is impossible to keep them off. In Massachusetts much less difficulty in this respect is experienced, for there, it is believed, a penalty is incurred by the owner of domestic animals that go upon the railroad. Our business is conducted with all possible care in this respect, and the engine men suitably feel the risk of life or limb (which to them is almost as important) that they incur from the growing evil.

"A very proper law in this State has guarded the public and the company against direct wanton injury to the trains by individuals. It is submitted that negligence in allowing animals to run upon the railroads should be prevented by some suitable restraints."

The following table shows the whole receipts of the company from all sources, and the expenses and disbursements actually paid each year.

STATEMENT Of the receipts and expenditures of the Syracuse and Utica Railroad Company, for the years 1839 to 1846, inclusive.										
Years.	EXPENSES.				RECEIPTS.				Net gain over all expenses.	
	Transportation.	Construction.	Total.	Passengers.	Freight.	Mail.	Miscellaneous.	Total.		
1839....	\$34,438 02	\$25,303 45	\$59,831 47	\$122,185 29	.....	.....	.....	\$132,185 29	\$62,353 32	
1840....	66,526 65	44,285 71	110,812 36	175,509 57	\$1,636 29	\$11,350 47	\$3,376 16	194,872 49	84,000 13	
1841....	66,666 22	42,928 00	109,624 22	190,929 32	2,341 16	5,317 63	1,025 62	199,513 73	89,889 51	
1842....	59,970 50	38,896 94	98,867 44	155,924 95	1,620 01	9,275 00	3,315 31	169,435 27	70,587 83	
1843....	66,796 44	7,413 31	74,209 75	147,363 40	2,119 82	11,598 75	2,714 11	163,786 08	89,576 33	
1844....	80,824 53	35,678 42	116,502 95	181,647 34	3,457 09	6,956 25	2,620 74	194,681 42	78,178 47	
1845....	140,224 59	975 00	141,209 59	182,434 78	12,947 50	6,956 25	1,951 70	204,310 23	63,070 64	
1846....	159,078 33	12,112 73	171,191 06	222,708 56	19,623 50	6,289 75	2,015 41	257,637 29	86,446 16	
	\$674,625 28	\$207,683 56	\$882,308 84	\$1,387,943 21	\$43,745 37	\$57,744 10	\$17,019 05	\$1,506,451 73	\$634,142 89	

The following is the tabular statement:  
Tabular statement relative to the Syracuse and Utica Railroad Company, made to the Secretary of State, agreeable to a resolution of the Assembly, passed February 2d, 1843, showing the business of the road for 1846.

Length of the road 53 miles.  
Cost of construction ..... \$1,128,940 24  
Less amount charged to account "depreciation property," for reduced value of engines, cars, 30,000 00  
\$1,098,940 24

Received from 103,798 $\frac{1}{2}$  through passengers ..... 207,597 00  
Received from 51,481 way passengers ..... 22,111 56  
Received from transportation of freight, ..... 19,623 50  
Received from transportation of U. S. mail ..... 6,289 75  
Received from miscellaneous sources ..... 2,015 41  
Expenses for repairing, operating, and running the road, including the amount paid for debt and new cars ..... \$124,932 48  
Amount paid for new track 38,241 12  
do permanent fixtures ..... 8,017 56

\$171,191 16  
Expended on account of construction for land ..... 12,112 73  
Dividend paid February 15 ..... 40,000 00  
do August 15 ..... 40,000 00

Number of locomotives, 9.

An individual interest in 42 eight wheeled passage cars, 10 eight wheeled emigrant, 14 eight wheeled baggage, 4 eight wheeled baggage and mail, owned by the railroads between Albany and Rochester.

Number of freight cars, 40; number of passage cars, 9; machine shop, 1. Average number of men employed by the company, 120.

Number of miles run by passage trains ..... 95,000  
do do freight and other trains ..... 35,000

130,000  
JOHN WILKINSON, President.

Syracuse, January 23d, 1847.

STATE OF NEW YORK, ss.  
Onondaga county, ss.

John Wilkinson, president of the Syracuse and Utica Railroad Company, being duly sworn, saith, that the foregoing statements of the receipts, expenditures and condition of the Syracuse and Utica Railroad, are just and true according to the best of his knowledge, information and belief.

JOHN WILKINSON.

Subscribed and sworn before me, this 23d day of January, 1847.

R. WOOLWORTH,  
Justice of the Peace.

#### REPORT OF THE AUBURN AND SYRACUSE RAILROAD COMPANY.

Hon. N. S. BENTON, Secretary of State.

Sir—Herewith is transmitted the statement of the Auburn and Syracuse Railroad Company, pursuant to a resolution of the Assembly, passed February 2, 1843, for the year ending December 31, 1847.

1. Length of road, 26 miles.
2. Cost of construction as stated to January 1, 1846 ..... \$675,239 02
3. Expended on construction in 1846 ..... 3,947 50

Balance of interest account to Jan. 1, 1846 ..... \$93,034 23

Expended for interest in 1846 12,003 15

105,037 38

Total to January 1, 1847 ..... \$781,222 90

4. Income from passengers ..... \$98,051 71
5. do freight ..... 16,886 32
6. do U. S. Mail ..... 4,050 00
- do incidental ..... 50 00

119,038 03

7. Number of through passengers ..... 96,675 $\frac{1}{2}$

8. Number of way passengers ..... 9,134

105,809 $\frac{1}{2}$

9. Receipts from passengers ..... \$98,051 71

10. Expenses for repairing and running road ..... 46,164 08

11. Amount of dividends ..... 32,000 00

12. Number of locomotive engines ..... 4

13. Number of passenger, mail and baggage cars as follows:  $\frac{2}{3}$  parts of all the passenger, baggage and mail cars owned as common stock between Albany and Rochester, being 52 eight wheeled passenger cars and eighteen eight wheeled baggage cars.

14. Number of freight cars (4 eight wheeled, 18 four wheeled) ..... 22

15. Number of machine shops..... 1  
 16. Average number of men employed.... 56  
 17. Number of miles run by passenger, freight, and other trains..... 61,660

Cayuga County, ss.

Thomas Y. How, Jr., Director and Treasurer, and Elijah P. Williams, Superintendent of the Auburn and Syracuse Railroad Company being duly sworn, doth depose and say, that the above statement is correct and true according to the best of their knowledge and belief.

THOMAS Y. HOW, JR.  
 ELIJAH P. WILLIAMS.

Sworn this 1st day of February, 1847, before me,  
 A. C. MONGER,  
*Justice of the Peace,*  
 Cayuga county.

# REPORT OF THE AUBURN AND ROCHESTER RAILROAD COMPANY.

Hon. N. S. BENTON, *Secretary of State.*

Sir—The president, directors and company of the Auburn and Rochester Railroad submit the following report of the business of the road for the year 1846, in conformity to a resolution of the Assembly of the State of New York, passed February 2d, 1843.

The length of the road is 78 miles.  
 The cost of construction to 1st of Jan., 1846, was.....\$1,832,045 18  
 Expended on construction in 1846..... 32,999 28

Total cost of construction to 1st Jan., 1847, is.....\$1,865,044 46

Received from through passengers... \$169,006 98  
 do way do ... 84,066 23  
 do freight..... 20,201 76  
 do U. S. mail and other sources..... 16,895 58

Total income for the year 1846..... \$290,170 55

Expended for repairs and running road \$110,353 24

Dividend paid 1st February, 1846... \$56,000 00  
 do 1st August, 1846..... 56,000 00

\$112,000 00

Number of through passengers..... 62,218  
 do way do ..... 80,037

Total number of passengers..... 142,255

Number of miles run by passenger trains..... 135,563

Number of miles run by freight trains do do all other do 24,590

Total number of miles run..... 189,245

Number of locomotives..... 10

Number of eight wheel freight cars..... 16

Number of four wheel do ..... 12

Number of passenger, baggage and mail cars, viz: 1st of the following, owned in company with the line of railroads between Rochester and Albany, viz:

Eight wheel passenger cars..... 42  
 do emigrant cars..... 10  
 do baggage cars..... 14  
 do baggage and mail cars..... 4

Total in passenger business..... 70

Number of horses..... 4

Number of machine shops..... 2

Average number of men in the employ of the company:

Carpenters..... 21  
 Blacksmiths..... 10  
 Machinists..... 23  
 Laborers..... 106  
 All others..... 30

Total number..... 190

All which is respectfully submitted,  
 CHAS. SEYMOUR,  
*Sec'y and Treas. A. & R. R. Co.*

Ontario county, ss.

I, Charles Seymour, secretary and treasurer of the Auburn and Rochester Railroad Company, being duly sworn, depose and say, that the foregoing state-

ment is true according to the best of my knowledge and belief.

CHAS. SEYMOUR,

*Sec'y and Treas. A. & R. R. Co.*

Subscribed and sworn before me, this 13th day of January, 1847.

S. C. WHITE, *Justice of the Peace*

# REPORT OF THE TONAWANDA RAILROAD COMPANY.

In compliance with the resolution of the Honorable the Assembly, passed February 2, 1843, the Tonawanda Railroad Company would report:

1. The length of the railroad of this company in operation is estimated at 43½ miles.  
 2. The cost of construction of the railroad of this company is as follows:  
 Amount charged to construction up to January 1, 1846, as per last report.....\$751,053 28  
 Expended for construction in 1846..... 2,501 91

Whole cost of construction..... \$753,555 19

3. The income for the year 1846 from passengers, from freights, and from all other sources, was as follows:

From passengers.....\$111,583 09  
 do freights..... 23,779 97  
 do U. S. mail..... 6,347 25  
 do storage..... 2,107 89

\$143,818 20

Sinking fund with revenue from N. Y. Life Insurance and Trust Co.....\$5,333 33

From sale of iron rails and iron..... 3,161 65  
 do car sold..... 300 00  
 do interest received..... 447 91

Total.....\$153,061 09

4. Number of through and way passengers in '46.

Number of through passengers..... 65,359½ paying \$93,604 06  
 Number of way passengers..... 27,028 do 17,316 94

4th of July and state fair do 762 07

Total.....92,387½ \$111,583 09

5. Expenses for construction and for repairs, and for running the road, etc.

Paid for construction in 1846..... \$2,501 91

do repairs and running the road..... 45,184 49

Paid in purchasing debts of the company with interest thereon..... 33,566 19

Paid interest on mortgages and other debts..... 1,234 03

Paid interest and sinking fund on loan of State credit..... 7,047 82

Total..... \$89,534 44

6. The amount of dividends paid July 1, 1846, and January 1, 1847, was..... \$56,300 00

7. Number of locomotives, etc.

6 locomotives,

5 eight wheel passenger cars.

3 four wheel do

7 eight wheel freight and baggage cars.

40 four wheel freight cars.

1 mail car.

1 engine house.

1 machine shop.

1 carpenter shop.

2 horses.

8. The average number of men in the employ-

ment of the company in 1846, was 70.

9. The number of miles run by passenger

trains was..... 59,622

do do by freight trains, 11,084

F. WHITTLESEY, *Secretary.*

Rochester, January 16, 1847.

State of New York, Monroe county, ss.

Frederick Whittlesey and Lewis Brooks, of the city of Rochester, being duly sworn, severally depose and say, first: The said Frederick Whittlesey saith that he is secretary of and director in the Tonawanda Railroad company. Second: The said Lewis Brooks saith that he is treasurer of and director in said company; and they each for themselves say, that from the examination of the books of said company, and from their knowledge of the affairs of the said company, and from the accounts kept in the different offices of the said company,

they have compiled the above report, and believe that the same is correct and true.

FREDERICK WHITTLESEY.

LEWIS BROOKS.

Sworn and subscribed, this 16th day of January, 1847, before me.

B. SCHAEFFEL,  
*Commissioner of Deeds.*

# ATTICA AND BUFFALO RAILROAD CO.

In compliance with a resolution of the Assembly passed February 2, 1843, the Attica and Buffalo railroad company submit the following report for the year 1846:

Length of the Attica and Buffalo railroad, 36 miles and 26 chains.

Length of branches about 50 chains.

The company own and have in use,

4 long passenger cars.

2 short do.

5 long freight cars.

1 mail and baggage car.

6 short freight and baggage cars.

24 short wood cars.

4 locomotive engines.

1 machine shop.

The average number of men, 26.

The cost of construction of the road is as follows:

Amount charged to construction to January 1, 1846, [correcting] the last report.....\$303,257 89

Amount charged in 1846 to same acc't. 3,446 63

Total cost of construction..... 30,704 52

Paid for cars and engines up to January 1, 1846..... 38,392 53

Paid for cars and engines in 1846..... 9,711 80

Total cost of engines and cars..... 48,104 33

The income of the road for the year 1846 from all sources, was as follows:

Income from passengers.....\$72,405 55

" freight..... 8,185 64

" U. S. Mail..... 4,800 00

" sale of stock..... 877 50

" miscellaneous..... 225 37

Total income from all sources..... 86,494 06

No. through passengers in '46, 77,517 fare 67,793 95

" " " 10,116 " 4,611 60

Total.....87,613 72,405 55

The expenses for construction in 1846, as before stated..... 3,446 63

For engines and cars..... 9,711 80

Total running expenses..... 33,564 98

47,733 41

A dividend of 4 per ct. paid Feb. 1, '46. 13,546 00

do 5 do. Aug. do.. 16,950 00

\$30,496 00

The number of miles run by passenger trains, 54,261

" " freight " 10,391

J. O. PUTNAM,

*Sec. and Treas. A. and B. R. Co.*

Buffalo, January 25, 1847.

Erie County, ss.

James O. Putnam, of the city of Buffalo, being duly sworn, deposes and says, that he is the secretary and treasurer of the Attica and Buffalo railroad company, that he has prepared the foregoing statement from the books of said company, and that it is correct according to the best of his knowledge and belief.

J. O. PUTNAM.

Sworn before me this 1st day of February, 1847.

T. BURWELL,

*Judge of Erie County.*

BUFFALO AND NIAGARA FALLS RAILROAD COMPANY.

To the Hon. the SECRETARY of the State of New York.

The Buffalo and Niagara Falls Railroad Company would respectfully submit the following report for the year 1846:

Length of road, 22 miles.

Cost of construction to January 1, 1847. \$905,902 95

Passenger earnings..... 29,840 92

Extra baggage, furniture, etc..... 3,314 82

Mail earnings..... 800 00

Amount paid for dividends..... 13,915 33

Current expenses..... 14,644 39



Number of through passengers.....	42,899
do way passengers.....	7,916
do locomotives.....	3
do passenger cars of eight wheels	2
do do four ".....	10
do baggage and lumber cars....	6
Average number of men employed.....	18
Number of miles run by locomotive.....	24,500

Very respectfully, yours,

W. A. BIRD, Treasurer.

Buffalo, Jan. 24, 1847.

#### IMPORTANT EXPERIMENTAL TRIP.

On Thursday, May 13th, there was a grand day with the steam navy at Woolwich, the Lords Commissioners of the Admiralty having ordered an experimental trip with all the steam-vessels at that station which were in a state of sufficient forwardness for the purpose. The vessels originally appointed to compose the squadron were, the Amphion, 36 guns (300 horse power;) Sharpshooter (iron screw st.;) Rifleman (wooden screw st.;) Minx (iron screw st.;) Teazer (wooden screw st.;) Growler (st. sloop;) Kite (st. v.;) and Princess Alice (iron st. packet.) Owing to the arrangements being incomplete, the Sharpshooter and Rifleman did not join the squadron. Between nine and ten o'clock the Lords Commissioners arrived. At ten minutes past eleven the signal was given from the Black Eagle to loose from moorings, and in about ten minutes the fleet started from Woolwich in the following order: Teazer (screw) leading the way, followed by the Amphion, Monkey, Black Eagle, and Kite, and in this order they proceeded down Woolwich Reach, and up the galleons. The Amphion was, of course, the principal object of interest, and upon testing her speed, it was found that with the engines making 45 revolutions, and with her jib set, her rate of speed through the water was 6.8 knots. The Teazer proved to be the slowest boat of the fleet. In Half-way Reach the Black Eagle put on her full speed, and soon came up to the Amphion, and then reducing her engines to half speed, she kept within hail of the Amphion during the remainder of the cruise. Their lordships, who took their station on the paddle-box of the Black Eagle, with Sir J. J. Gordon Bremer, paid especial attention to the Amphion, and signalled to hoist the spanker sail, the wind then blowing stiff from the south-east. The log was again thrown overboard, and the speed with the engines at forty-seven revolutions proved to be 7.8 knots. When the squadron reached Erith, the Minx, which is a faster boat than either the Amphion or Teazer, soon headed the fleet, the Amphion holding on her way, with the Kite on her larboard, and the Black Eagle on her starboard, quarter; the Teazer a considerable distance astern, and the Growler (which had been detained at Woolwich) just bearing in sight. The squadron passed Erith at a quarter past twelve, and a signal was then hoisted from the Admiralty yacht (Black Eagle) to put on more sail; an order which could not then be complied with, as the wind was unfavorable. In Long Reach, the speed of the Amphion was tried at the measured mile, which was done in 8 min. 52 secs., the tide having just ebbed; this gives a rate of speed equal to 6.766 knots, or about 8 miles,

with the engines making 44½ revolutions. As the squadron neared Greenhithe, their lordships boarded the Amphion, and ordered all sail to be set. The spanker, jibs, and topsails were then set, and this vessel, under the conjoint influences of wind and steam, careered rapidly on her way. The Growler, which had continued her course at full speed, here overhauled the fleet, and passing the Amphion to port, took up her station as the leading steamer on the starboard side. The squadron stood on through Sea Reach, where the full operations of both wind and tide was felt; and here the log gave a speed of 10 knots. Having reached the estuary of the Thames, their lordships signified their wish to return, and the Amphion was brought round with great celerity, and they embarked at once on board the Black Eagle. It may be as well to state that this is the first time the experimental trials with the Amphion have proved successful. In all former trials the success was most incomplete, the engines would scarcely work for half an hour without stopping, owing to the canvass collapsing. Metal valves have now, on the recommendation of the authorities at Woolwich been adopted, and the result has proved in the highest degree satisfactory. A correspondent says—"considering the great size of the Amphion, and that her auxiliary engines are only of 300 horse power, a very small proportion for a frigate of 36 guns, her progress through the water was surprising, and leads to the belief that she will prove one of the most serviceable vessels afloat." She carried with her in this cruise, all her guns, with stores, provisions, and water, for three months, and a large supply of coals.

#### First Manufacture of Railroad Iron in the United States.

We cheerfully give place to the following communication, says the editor of the Merchant's Magazine, from an intelligent correspondent residing at Lynchburg, Va., and a large stockholder in the "Tredegor Iron Company," of the State. Our correspondent, it will be seen, refers to an extract from the "Miners' Journal," published in the MERCHANTS' MAGAZINE for January, 1846, in which it is stated that the first railroad iron was made in 1844; and to a correspondent in a subsequent number of our Journal, who states that the "Great Western Iron Company," on the Allegheny river, produced in 1842, two hundred tons of railroad iron.

To the Editor of the Merchant's Magazine and Commercial Review:—Sir—In the January number of your truly valuable work, I find an article on the manufacture of railroad iron, taken from the Miners' Journal, in which it is stated that only two years have elapsed since the first ton of railroad iron was made in this country; and again in your February number, this subject is noticed, and the belief expressed that the credit is due to the "Great Western Iron Company," of Pennsylvania, for introducing this important branch of the iron business into our country. Both of these statements are erroneous, doubtless unintentionally so. I have no doubt that the first railroad iron made in the United States was manufactured by the Tredegor Iron Works, at Richmond, Va. The evi-

dence I will offer to sustain the claims of Richmond, is, I think, pretty conclusive. I give it in an extract from a letter of John F. Tanner, Esq., secretary of the Tredegor Iron Company, dated Richmond, 1st February, 1846, to whom I made application for accurate information, after reading your January number, lest my memory should mislead me. Mr. Tanner says, "the first railroad iron made at these works was manufactured in (1837) eighteen hundred and thirty-seven. In 1838, we made a considerable quantity for the Richmond, Fredericksburg, and Potomac Railroad Company, and other roads in this State." Ever since that period, occasional orders for railroad iron have been executed at these works. The Tredegor works were erected in 1836-7; commenced operations, I think, the 8th of May, 1837. They were built by Edward Cunningham, John A. Cunningham, and Francis B. Deane, Jr., who conducted them on private account, till 1st of January, 1838; when a joint stock company was formed, under a charter obtained from the legislature, at the session of 1837-8; to which company Messrs. Deane & Cunningham sold their works. So it would seem that the individuals who projected and completed the Tredegor rolling-mill were the pioneers in the manufacture of railroad iron in the United States.

The capital stock of the Tredegor Iron Company is about \$280,000; the annual product turned out, about \$350,000; coal consumed, from 175,000 to 200,000 bushels; pig iron, about 4,000 tons; annual payments for labor, from 50,000 to 60,000 dollars. This establishment manufactures as great a variety of sizes of bar iron, rods, hoops, bands, extra sizes, rounds and squares, locomotive engines, screw moulds, boat plates, and rods for iron vessels, as any other in the Union. The quality of its production is equal to the best iron found in our markets, of English or American manufacture. Besides the extensive works for making malleable iron of almost every description, which the wants of commerce require, there is attached to them a very large foundry, with machine-shops, fitted up in the best manner, with lathes, etc., for building steam-engines, sugar-mills, machinery of every description. Also, a large boring-mill, and all necessary apparatus for finishing ordnance of the largest size ordinarily used, either in our army or navy. From the Tredegor iron foundry, castings of excellent quality and great variety are annually turned out. The ordnance made there is regarded equal to the best which the government procures elsewhere, of which fact the records of the war and navy departments will afford ample testimony.

I feel much confidence in claiming for the Tredegor works the credit of introducing several other important branches of iron manufacture, as well as railroad iron. I believe locomotive rolled axles were first made there; and if my information be correct, they have to a great extent superseded the English and American hammered axles. The same may be said of boat-rib irons; these were also first made at the Tredegor works, and I

am told that even now, there are descriptions of this important article used by government in building iron vessels, which can only be procured at these works.

Without intending any disparagement to other works, or the enterprise of my fellow-citizens in the Northern States, I am induced to make this communication,—first, that correct information may be placed before the public; and secondly, that it may be known that the unrivalled advantages possessed by Virginia, for the manufacture of iron, are not so entirely neglected as many believe them to be.

A STOCKHOLDER OF THE TREDEGOR CO.

**Rosin Paving.**—A portion of one of the streets in Fayetteville, N. C., is actually paved with solid rosin. A correspondent of the Boston Post says that he has rode a horse and driven a carriage over this novel pavement several times, and a capital road it makes. It has a beautiful clear look, presenting a smooth, hard surface, and it never rots. The manufacturer means to cast it into blocks of the right shape and size for constructing aqueducts, water-courses, and sewers.

**Advance of Tolls.**—The Reading Railroad Company have given notice that on the first day of July the rate of tolls on coal brought over their road will be advanced ten cents per ton above the present rate, and that an advance of ten cents per ton will be charged on each successive month.

**MICHIGAN CENTRAL RAILROAD.—NOTICE TO CONTRACTORS.**—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of C. L. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors.

J. W. BROOKS, Supt.  
Michigan Central Railroad Office,  
626 Detroit, June 17, 1847.

**NOTICE TO CONTRACTORS.—SEALED** Proposals will be received until Wednesday, July 15th, in the Borough of Harrisburg, and until Wednesday, July 22d, in the city of Pittsburg, at 10 o'clock A.M., at the Office of the Engineers, for the Grading and Masonry upon fifteen miles of the Pennsylvania Railroad, extending west from Harrisburg, and fifteen miles of said Railroad, extending east from Pittsburg. The grading will include very heavy work, and the amount of Masonry, including the Piers of Abutments of the Bridges across the Susquehanna, three-quarters of a mile in length, will be unusually large. Plans and specifications of the work can be seen at the Engineer's office in each place, for ten days previous to the time appointed for receiving the bids. Any further information can be had upon application to the Chief or Associate Engineers.

S. V. MERRICK, President.  
**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz:  
180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long.  
25 " 2½ x 1 " Flange Iron Rails.  
75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.  
2v19 1y

### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.  
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

**PATENT HAMMERED RAILROAD, SHIP** and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.  
ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

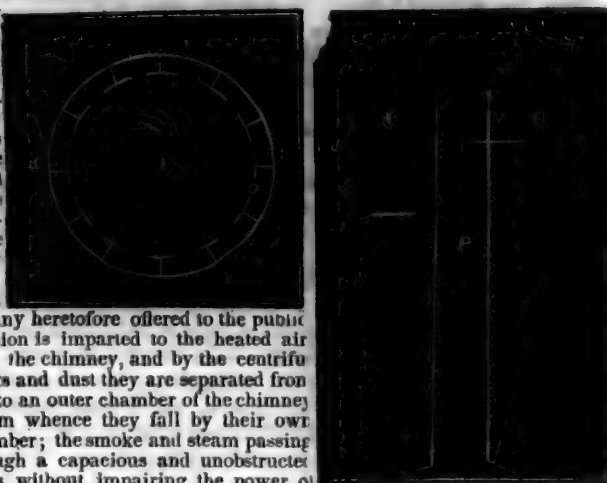
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callen-lers; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
445 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

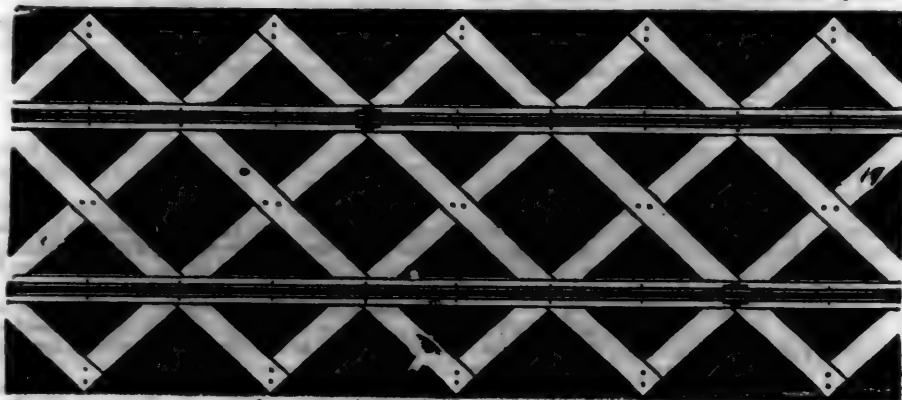


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestles for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,924 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge. =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON,  
Civil Engineer and Patentee.  
No. 377 South Tenth St., Philadelphia. 33uf

## LAP-WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS.

FROM 11-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,

Dec. 23, 1y\*

Maryland.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY

### EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Road Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

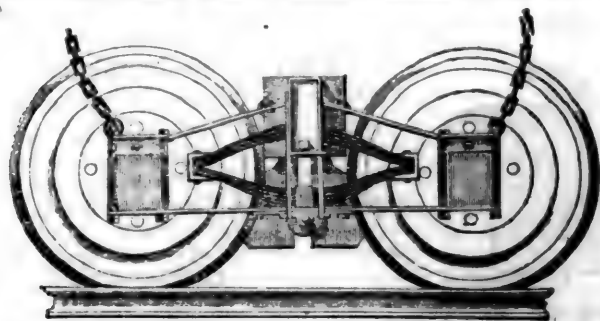
For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

32 1y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street, Philadelphia, Pa. 1y25

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring M.I. and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [11y] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH,

1y19 Supt. Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use; preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS

of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 13th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

46f



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14 " " "	× 24 " "
" 3,	14½ " " "	× 20 " "
" 4,	12½ " " "	× 20 " "
" 5,	11½ " " "	× 20 " "
" 6,	10½ " " "	× 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper,  
Murdoch, Leavitt & Co.  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co.  
William Parker, Supt. Rost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 30th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

PASCAL IRON WORKS.

## WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS**, Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS**, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL &amp; CO.

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
1y Albany Iron and Nail Works,

**THE SUBSCRIBER IS PREPARED TO**  
execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1y10 New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
41f Willow Street Wharf,  
Philadelphia, Pa.

**NOTICE TO CONTRACTORS.—ANDROS-  
COGIN AND KENNEBEC RAILROAD.**  
Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14½ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Androscoggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June.

Satisfactory securities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.  
Railroad Office, Lewiston, May 8, 1847. 4121

**THE SUBSCRIBERS ARE PREPARED TO**  
execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
261f Philadelphia.  
ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**CONCORD RAILROAD.—PASSENGER**  
Trains in connection with the Lowell & Nashua Railroads, run daily between  
Concord and Boston, Sundays  
excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

261f N. G. UPHAM, Supt.

**NEW YORK AND ERIE RAILROAD LINE**  
SUMMER ARRANGEMENT. For passen-  
gers, twice each way daily,  
(except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½ A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For further particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

241f H. C. SEYMOUR, Sup't.

**WESTERN RAILROAD.—ON AND AF-**  
ter Monday, April 5, 1847, the passenger  
trains will leave daily, Sun-  
days excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.  
Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany.  
Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.  
The trains for Buffalo leave at 7½ a. m. and 7 p. m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a. m., 1 and 3 p. m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.  
C. A. SEAD, Agent, 27 State street, Boston.

**BOSTON AND PROVIDENCE RAIL-**  
road. Passenger Notice. Summer Arrange-  
ment. On and after Mon-  
day, April 5, 1847, the Pas-  
senger Trains will run as follows:

Steamboat train via Stonington.—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 3½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

251f W. RAYMOND LEE, Sup't.

**NEW YORK & HARLEM RAILROAD**  
CO.—Summer Arrangement.—On and after  
Tuesday, June 1st, 1847, the cars  
will run as follows, until further  
notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—Freight train at 1 p.m.

Returning to New York, will leave—  
Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 20 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 33 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c., to White Plains 50c. 251f

**LONG ISLAND RAILROAD COMPANY.**  
Summer Arrangement. On and after Monday  
May 1st, trains will run as  
follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4½ p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

251f DAVID S. IVES, Sup't.

**PATERSON RAILROAD**  
Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave

Paterson at New York at  
8 o'clock a.m. 9½ o'clock a.m.

11½ o'clock a.m. 12 1-4 o'clock p.m.

4 o'clock p.m. 5½ o'clock p.m.

On Sunday,  
8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.  
Office 75 Courtlandt St.



# **BALTIMORE AND SUSQUEHANNA** Railroad.—Reduction of Fare, Morning and Afternoon Trains between Balti-

more and York.—The Passenger  
trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

FARE.	
Fare to York.....	\$1 50
" Wrightsville.....	2 00
" Columbia.....	2 12½
Way points in proportion.	

## **PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg...3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

## **BOSTON AND MAINE RAILROAD.** Upper Route, to Portland and the East.

### **SUMMER ARRANGEMENT.** April 1, 1847.

**PORTLAND TRAINS.**  
Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

### **GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

### **HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

### **READING TRAINS.**

Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

### **MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 1½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Sup't.

## **NORWICH AND WORCESTER RAILROAD.** Summer Arrangement. Change of

Hours. Commencing on  
Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4½ p.m. Leave  
Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat.—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 321y  
J. W. STOWELL, Sup't

## **PHILADELPHIA AND READING RAILROAD.**—Passenger Train Arrangement for 1847.

A Passenger Train will leave  
Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" " Reading, 58	2.25 and 1.90		
" " Pottsville " 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

## **PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.**—1847.

### **Summer Arrangement.**

Philadelphia for Baltimore...8 a.m. and 10 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. No line on Sun. Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

## **CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.** On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 3 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.

## **NEW YORK AND PHILADELPHIA RAILROAD** line—direct. Via Newark, New Brunswick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

### **FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25tf

## **LITTLE MIAMI RAILROAD.**—OPEN TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

Fare—From Cincinnati to Lebanon....	\$1 00
" " " Xenia.....	1 50
" " " Springfield....	2 00
" " " Columbus....	4 00
" " " Sandusky city 8 00	

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47tf W. H. CLEMENT, Sup't.

## **BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pitsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pitsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

### **WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 313y1

## **LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y



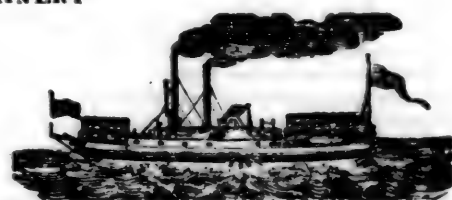


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 28.]

SATURDAY, JULY 10, 1847.

[WHOLE No. 577, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, July 10, 1847.

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

19 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**ATLANTIC AND ST. LAWRENCE RAILROAD.**—Notice to Contractors.—Proposals in writing will be received at the office of the Atlantic and St. Lawrence Railroad Company, in the city of Portland, until Tuesday, the tenth day of August next, inclusive, at sunset, for the grading, masonry, and bridging of that portion of their road extending from the termination of the second division near the hotel road in Danville, to a place in the vicinity of Norway and Paris cape, a distance of about 30 miles. Maps, profiles, and specifications will be ready for examination on and after the second day of August next, at the Engineer's office in Portland, where all necessary information will be given.

The company will require, as one of the stipulations of the contract, that the heavier work on any section, shall be first attended to, so that the heavier and lighter work may be completed at nearly the same time.

Persons unknown to the officers of the company must accompany their bids with satisfactory evidence of their ability to execute the work. In all cases good and sufficient bonds with two or more sureties will be required for the faithful performance and fulfilment of the contract.

Wm. P. PREBLE, President.

Portland, June 30, 1847.

## Railway Profits.

The Mining Journal, of 12th June, says that "the principal railway companies in the United Kingdom having lines completed and at work, are 28 in number; the length of their lines in operation is 2418½ miles, and the total cost to the dates of the last balance sheets is £77,162,952. The dividends now paid upon the different items of which this capital is made up, vary from two to ten per cent. in the following proportions:

On £1,079,867 the dividend is £2 0 per cent.	
On 853,918 " " 2 8 "	
On 520,341 " " 2 12 "	
On 142,900 " " 3 0 "	
On 4,741,249 " " 3 10 "	
On 1,174,969 " " 4 0 "	
On 5,705,057 " " 5 0 "	
On 1,085,498 " " 5 10 "	
On 2,005,127 " " 6 0 "	
On 26,276,102 " " 7 0 "	
On 2,426,000 " " 8 0 "	
On 2,062,053 " " 9 0 "	
On 23,059,571 " " 10 0 "	

£77,162,952

The total dividend upon the various items above enumerated amounts to £5,746,068 per annum, being an average of 7½ per cent., within a fraction, on the entire sum invested by the shareholders in these undertakings. It should be borne in mind, too, that the resources of many of these companies are as yet but imperfectly developed. In some cases the lines are but partially opened, and in others, such as the Great Western, though the main lines are complete, many of the tributaries essential to the full development of the system of which they form part, and from which much increased wealth and prosperity must necessarily flow, are as yet incomplete, and have brought nothing to the general fund."

## The Iron Trade.

We have our foreign files by the Caledonia up to 12th June, inclusive, from which we learn that the iron trade is not very brisk. Rails are quoted on the 4th at £9, average, and on the 11th at £9 a £9

5s. The monthly report of June 3d says that English bar iron has been in little demand during the month, and prices have fallen 5s. per ton. With a better demand has taken place, and makers now refuse to sell under £8 10s. at the works in Wales. The rail market has been exceedingly dull, principally owing to the difficulty the various companies experience in getting in their rails. Scotch pig iron declined to 63s. 6d. mixed numbers, and 64s. to 65s. No. 1; but within the last few days rather higher prices have been asked. Swedish iron and steel are dull of sale.

The remarks in the Mining Journal upon the subject of pig iron are that the fine weather, and consequent improvement in prospects, have had the effect of stiffening the price of pig iron this week. There was considerable demand on Monday and Tuesday, and sales were effected to some extent at 64s. and 64s. 6d. cash. To-day, although there is less inquiry, there is no greater disposition to sell, and in the absence of transactions, quote the price nominally at 65s. The iron masters have resolved upon making a reduction in the workmen's wages, to the extent of 25 per cent., which, apparently, will be submitted to.

In the same paper, of 12th June, we find it stated that Welsh and Staffordshire are without alteration, and the demand is very moderate for export. In Scotch pigs very little doing, but from there being no parcels pressing on the market the price is a little firmer.

## Michigan Southern Railroad.

The Michigan Southern railroad company held their annual meeting at Monroe on the 14th ultimo, and elected T. B. Van Brunt, president, and S. J. Holly, vice president. This company have had the road in their possession for about five months, during which period they have increased the number of freight cars from 48 to 85—each sufficient to carry two tons burden, and passage cars from three to four. They have contracted for two new engines to be furnished by the 1st of August, and 25 double freight cars—equal to 50 of the ordinary size.

"Up to the 1st of June, the company had received cash \$36,527 74, which with the State liabilities on hand, will enable them to meet the payment due the State. The expenses during the same time, for paying officers and hands, for cars, repairing road, building bridge, etc., amounted to about \$14,000.—During the first ten days of last month, the receipts upon the road were \$6,244 19, and the freight on the

road awaiting transportation, was estimated as sufficient to keep the cars in constant operation until after harvest."

Under good management this road will soon give large returns to its proprietors, and important advantages to the people along its line.

#### Railroads at the South--The Connecting Link.

We have often had occasion to refer to the great inconvenience to travel and business arising from the break in the line of railroads between North and South Carolina. With the exception of this deficiency—a comparatively short line—we have railroad accommodation from Portland in Maine, and from Buffalo in New York, very nearly to the Alabama line; and therefore this break is exceedingly annoying to those who have become accustomed to the luxury of railroad travelling. Just in proportion, then, to the inconvenience of the interruption, will be the pleasure, to business men, to learn that the people of North Carolina, at least—and we believe those of South Carolina also—are determined to remove the cause of so many complaints, as we learn from the last number of the Wilmington Chronicle. The editor of that paper says:

"Our readers will perceive, by the proceedings of the stockholders at Marion, that the work of the CONNECTING LINK goes 'bravely on.'"

"We are rejoiced to see our friends, thus far, verify their promises, and show to the world that it is not by words alone, but by deeds, that their regard for the great interest of internal improvement are to be demonstrated.

"The time is come when every one who intends to participate in the honor of accomplishing this great and useful work, should come up to the line, and 'tell steps' with their compeers. It is not now a question as to whether the road shall be built or not—this problem is already solved. But the questions are, *who* will help? *When* shall it commence?

"The answers to the first question we suppose are already in the mind of the reader. *Who* will help? Why everybody that has real estate, or capital to invest. Everybody that has to do something for a living, whether in mercantile, mechanical or farming pursuits. Everybody that has any sort of interest in this section, or the least regard for the prosperity of the people here. Everybody that loves the glory of the good old North State.

"As to the matter of ability—all can help some. When one cannot afford to take even a single share, perhaps two or three can do it. It will be a good investment for even the man who relies on manual labor for support. The completion of the road will more than remunerate him, in a short space, through the facilities and the increase of price of labor.

"As to *when* it shall be built—the answer is also ready. Now—at once—let the work begin at 'both ends,' as recommended in the resolution offered by General McRae and adopted at the meeting at Marion. This is a most excellent plan, and will create a spirit of emulation among the citizens of the 'extremes.' There will be an honorable and fraternal striving for the mastery, as to who shall first proximate the centre.

"When we say that we rejoice in the selection of Gov. E. B. Dudley for president of the new road, we do not utter a commonplace sentiment or express a conventional compliment. For ourselves, and we dare venture the same for all the company as well as the whole community interested, it is the pleasure of the heart and the conviction of the mind, that hails the appointment as the harbinger of good things for our new road.

"We learn that during the meeting at Marion, several animated and interesting discussions arose, which were participated in by Gov. Dudley, Messrs. McRae, Nutt, Fulton and Wright, of North Carolina, and Sims, Harlee, J. A. Dargen, and others, of South Carolina; the general tenor of whose remarks proved that the zeal of the people of their respective sections, was unabated, and the determination to build the road at all events, stronger than ever."

We publish at length the proceedings of the convention at Marion in another page.

#### Railroad Extension and Railroad Mail Transportation.

We find a brief report in the National Intelligencer of 3d inst., of the proceedings of a meeting held in Washington, in February last, for the purpose of recommending an application to Congress for the appropriation of a portion of the public lands to aid in the construction of railroads, and thus facilitate the transportation of the mail. This is a measure in which we heartily concur—and we hope efficient measures may be adopted to carry it into operation. The editor of the Intelligencer says:

"Our attention has been invited to the following account of the proceedings of a meeting, which, it appears, was held in this city in February last, looking to the calling of a general railroad convention, should it be deemed expedient, at some time before the next session of Congress, for the purposes stated in the resolutions; to make known which we give the proceedings a place in our columns."

At a meeting of persons interested in the extension of railroads, held in the city of Washington on the 26th day of February, 1847, the Hon. Robert Smith, of Illinois, was called to the chair, and Gen. Duff Green appointed secretary, when the following resolutions were moved and adopted:

**Resolved**, That in the opinion of this meeting application should be made to Congress, at its next session, to enact a law granting aid by a donation of public lands for the construction of railroads passing through or near such public lands, and on condition that facilities for carrying the mails of the United States on such routes be given.

**Resolved**, As the opinion of this meeting, that the existing laws relating to postoffice contracts with railroad companies may be so modified as greatly to benefit railroad companies, and at the same time greatly reduce the cost of transporting the mails.

**Resolved**, As the opinion of this meeting, that a committee should be appointed, whose duty it shall be to obtain, as far as practicable, full and detailed statements of the condition of the several railroad companies now authorized by law, and of the plans, estimates and prospective utility of such railroads as it is proposed to establish hereafter, and to prepare a digest of the information thus obtained, to be submitted to a convention of persons interested in such railroads or to the next Congress.

**Resolved**, That it shall be the duty of said committee, if, after consulting with the post-office department, and persons throughout the several States, they shall deem it expedient, to call a meeting to be held in this city, to be composed of delegates sent by the several railroad companies and persons interested in the extension of railroads, at or before the meet-

ing of the next Congress, for the purpose of preparing and submitting to Congress a memorial, and such statistical and practical information as will enable Congress to pass proper laws on the subject.

When a committee consisting of the following named persons was appointed.

Hon. Robert Smith, of Illinois.

Gen. James Gadsden, of Charleston, S. C.

J. H. Bodley, Esq., of Vicksburg, Miss.

C. L. Hinton, of Raleigh, N. C.

Gen. Duff Green, of Washington.

Dr. Wm. Collins, of Washington.

Gen. Simon Cameron, of Pennsylvania.

Hon. Elish B. Whittlesey, of Ohio.

Col. James E. Murray, of New York.

Judge James Harwood, of Baltimore.

ROBERT SMITH, Chairman.

DUFF GREEN, Secretary.

#### Electricity and Electric Telegraph.

We copy the following interesting article "on the induction of Atmospheric Electricity on the wires of the Electrical Telegraph," by PROFESSOR HENRY, from the January number of "the American Journal of Science and Arts." The name of the writer, and of the Journal in which it was first published, will ensure it an attentive perusal by all who take an interest in the subject of which it treats, and no man can read it without instruction.

The writer says, "The action of the electricity of the atmosphere on the wires of the electrical telegraph, is at the present time a subject of much importance, both on account of its practical bearing, and the number of purely scientific questions which it involves. I have accordingly given due attention to the letter referred to me, and have succeeded in collecting a number of facts in reference to the action in question. Some of these are from the observations of different persons along the principal lines, and others from my own investigations during a thunder-storm on the 19th of June, when I was so fortunate as to be present in the office of the telegraph in Philadelphia, while a series of very interesting electrical phenomena was exhibited. In connexion with the facts derived from these sources, I must ask the indulgence of the society in frequently referring, in the course of this communication, to the results of my previous investigations in dynamic electricity, accounts of which are to be found in the proceedings and transactions of this Institution.

From all the information on the subject of the action of the electricity of the atmosphere on the wires of the telegraph, it is evident that effects are produced in several different ways.

1. The wires of the telegraph are liable to be struck by a direct discharge of lightning from the clouds, and several cases of this kind have been noticed during the present season. About the 20th of May, the lightning struck the elevated part of the wire, which is supported on a high mast at the place where the telegraph crosses the Hackensack river. The fluid passed along the wire each way, from the point which received the discharge, for several miles, striking off at irregular intervals down the supporting poles. At each place where the discharge



to a pole took place, a number of sharp explosions were heard in succession, resembling the rapid reports of several rifles. During another storm the wire was struck in two places in Pennsylvania, on the route between Philadelphia and New York; at one of these places twelve poles were struck, and at the other eight. In the latter case the remarkable fact was observed, that every other pole escaped the discharge; and the same phenomena was observed, though in a less marked degree, near the Hackensack river. In some instances the lightning has been seen coursing along the wire in a stream of light; and in another case it is described as exploding from the wire at certain points, though there were no bodies in the vicinity to attract it from the conductor.

In discussing these, and other facts to be mentioned hereafter, we shall, for convenience, adopt the principles and language of the theory which refers the phenomena of electricity to the action of a fluid, of which the particles repel each other, and are attracted by the particles of other matter. Although it cannot be affirmed that this theory is an actual representation of the cause of the phenomena as they are produced in nature, yet it may be asserted that it is, in the present state of science, an accurate mode of expressing the laws of electrical action, so far as they have been made out; and that though there are a number of phenomena which have not as yet been referred to this theory, there are none which are proved to be directly at variance with it.

That the wires of the telegraph should be frequently struck by a direct discharge of lightning, is not surprising, when we consider the great length of the conductor, and, consequently, the many points along the surface of the earth through which it must pass, peculiarly liable to receive the discharge from the heavens. Also, from the great length of the conductor, the more readily must the repulsive action of the free electricity of the cloud drive the natural electricity of the conductor to the farther end of the line, thus rendering more intense the negative condition of the nearer part of the wire, and, consequently, increasing the attraction of the metal for the free electricity of the cloud. It is not, however, probable, that the attraction, whatever may be its intensity, of so small a quantity of matter as that of the wire of the telegraph, can of itself produce an electrical discharge from the heavens: although if the discharge were started by some other cause, such as the attraction of a large mass of conducting matter in the vicinity, the attraction of the wire might be sufficient to change the direction of the descending bolt, and draw it in part or whole, to itself. It should also be recollected, that on account of the perfect conduction, a discharge on any part of the wire must affect every other part of the connected line, although it may be hundreds of miles in length.

That the wire should give off a discharge to a number of poles in succession, is a fact I should have expected, from my previous researches on the literal discharge of a con-

ductor transmitting a current of free electricity. In a paper on this subject, presented to the British Association in 1837, I showed that when electricity strikes a conductor explosively, it tends to give off sparks to all bodies in the vicinity, however intimately the conductor may be connected with the earth. In an experiment in which sparks from a small machine were thrown on the upper part of a lightning rod, erected in accordance with the formula given by the French Institute, corresponding sparks could be drawn from every part of the rod, even from that near the ground. In a communication since made to this society, I have succeeded in referring this phenomenon to the fact, that during the transmission of a quantity of electricity along a rod, the surface of the conductor is charged in succession, as it were, by a wave of the fluid, which, when it arrives opposite a given point, tends to give off a spark to a neighboring body, for the same reason that the charged conductor of the machine gives off a spark under the same circumstances.

It might at first be supposed that the redundant electricity of the conductor would exhaust itself in giving off the first spark, and that a second discharge could not take place; but it should be observed, that the wave of free electricity, in its passage, is constantly attracted to the wire by the portion of the uncharged conductor which immediately precedes its position at any time; and hence but a part of the whole redundant electricity is given off at one place; the velocity of transmission of the wave as it passes the neighboring body, and its attraction for the wire, preventing a full discharge at any one place. The intensity of the successive explosions is explained by referring to the fact, that the discharge from the clouds does not generally consist of a single wave of electricity, but of a number of discharges along the same path in rapid succession, or of a continuous discharge which has an appreciable duration; and hence the wire of the telegraph is capable of transmitting an immense quantity of the fluid thus distributed over a great length of the conductor.

The remarkable facts of the explosions of the electricity into the air, and of the poles being struck in interrupted succession, find a plausible explanation in another electrical principle which I have established, namely, in all cases of the disturbance of the equilibrium of the electrical plenum, which we must suppose to exist throughout all terrestrial space, the state of rest is attained by a series of diminishing oscillations. Thus, in the discharge of a Leyden jar, I have shown that the phenomena exhibited cannot be explained by merely supposing the transfer of a quantity of fluid from the inner to the outer side of the jar; but in addition to this we are obliged to admit the existence of several waves, backwards and forwards, until the equilibrium is attained. In the case of the discharge from the cloud, a wave of the natural electricity of the metal is repelled each way from the point on which the discharge falls, to either end of the wire, is then reflect-

ed, and in its reverse passage meets in succession the several waves which make up the discharge from the cloud. These waves will therefore interfere at certain points along the wire, producing, for a moment, waves of double magnitude, and will thus enhance the tendency of the fluid at these points to fly from the conductor. I do not say that the effects observed were actually produced in this way; I merely wish to convey the idea that known principles of electrical action might, under certain circumstances, lead us to anticipate such results.

2. The state of the wire may be disturbed by the conduction of a current of electricity from one portion of space to another, without the presence of a thunder-cloud; and this will happen in case of a long line, when the electrical condition of the atmosphere which surrounds the wire at one place is different from that at another. Now it is well known that a mere difference in elevation is attended with a change in the electrical state of the atmosphere. A conductor, elevated by means of a kite, gives sparks of positive electricity in a perfectly clear day; hence, if the line of the telegraph passes over an elevated mountain ridge, there will be continually during clear weather, a current from the more elevated to the lower points of the conductor.

A current may also be produced in a long level line, by the precipitation of vapor in the form of fog at one end, while the air remains clear at the other; or by the existence of a storm of rain or snow at any point along the line, while the other parts of the wire are not subjected to the same influence.

Currents of sufficient power to set in motion the marking machine of the telegraph have been observed, which must have been produced by some of these causes. In one case the machine spontaneously began to operate without the aid of the battery, while a snow storm was falling at one end of the line, and clear weather existed at the other. On another occasion a continued stream of electricity was observed to pass between two points at a break in the wire, presenting the appearance of a gas-light almost extinguished. A constant effect of this kind indicates a constant accession of electricity at one part of the wire, and a constant discharge at the other.

3. The natural electricity of the wire of the telegraph is liable to be disturbed by the ordinary electrical induction of a distant cloud. Suppose a thunder-cloud, driven by the wind in such a direction as to cross one end of the line of the telegraph at the elevation, say of a mile; during the whole time of the approach of the cloud to the point of its path directly above the wire, the repulsion of the redundant electricity with which it is charged would constantly drive more and more of the natural electricity of the wire to the farther end of the line, and would thus give rise to a current. When the cloud arrived at the point nearest to the wire, the current would cease for a moment; and as the repulsion gradually diminished by the receding of the cloud, the natural electricity of the wire would gradually return to its normal state, giving rise to a current in an opposite direction. If the

cloud were driven by the wind parallel to the line of the telegraph, a current would be produced towards each end of the wire, and these would constantly vary in intensity with the different positions of the cloud. Although currents produced in this way may be too feeble to set in motion the marking apparatus, yet they may have sufficient power to influence the action of the current of the battery so as to interfere with the perfect operation of the machine.

4. Powerful electrical currents are produced in the wires of the telegraph by every flash of lightning which takes place within many miles of the line, by the action of dynamic induction; which differs from the action last described, in being the result of the influence of electricity in motion on the natural electricity of the conductor. The effect of this induction, which is the most fruitful source of disturbance, will be best illustrated by an account of some experiments of my own, presented to the society in 1843. A copper wire was suspended by silk strings around the ceiling of an upper room, so as to form a parallelogram of about sixty feet by thirty on the sides; and in the cellar of the same building, immediately below, another parallelogram of the same dimensions was placed. When a spark from an electrical machine was transmitted through the upper parallelogram, an induced current was developed in the lower one, sufficiently powerful to magnetize needles, although two floors intervened, and the conductors were separated to the distance of thirty feet. In this experiment no electricity passed through the floors from one conductor to the other; the effect was entirely due to the repulsive action of the electricity in motion in the upper wire on the natural electricity of the lower. In another experiment, two wires about 400 feet long, were stretched parallel to each other between two buildings; a spark of electricity sent through one produced a current in the other, though the two were separated to the distance of 300 feet; and from all the experiments, it was concluded that the distance might be indefinitely increased, provided the wires were lengthened in a corresponding ratio.

That the same effect is produced by the repulsive action of the electrical discharge in the heavens, is shown by the following modification of the foregoing arrangement. One of the wires was removed, and the other so lengthened at one end, as to pass into my study, and thence through a cellar window into an adjacent well. With every flash of lightning which took place in the heavens, within at least a circle of twenty miles around Princeton, needles were magnetized in the study by the induced current developed in the wire. The same effect was produced by soldering a wire to the metallic roof of the house, and passing it down into the well; at every flash of lightning a series of currents in alternate directions was produced in the wire.

I was also led, from these results, to infer that induced currents must traverse the line of a railroad, and this I found to be the case.

Sparks were seen at the breaks in the continuity of the rail, with every flash of a distant thunder-cloud.

Similar effects, but in a greater degree, must be produced on the wire of the telegraph, by every discharge in the heavens; and the phenomena which I witnessed on the 19th of June in the telegraph office in Philadelphia, were, I am sure, of this kind. In the midst of the hurry of the transmission of the congressional intelligence from Washington to Philadelphia, and thence to New York, the apparatus began to work irregularly. The operator at each end of the line announced at the same time a storm at Washington, and another at Jersey City. The portion of the circuit of the telegraph which entered the building, and was connected with one pole of the galvanic battery, happened to pass within the distance of less than an inch of the wire which served to form the connexion of the other pole with the earth. Across this space, at an interval of every few minutes, a series of sparks in rapid succession was observed to pass; and when one of the storms arrived so near Philadelphia that the lightning could be seen, each series of sparks was found to be simultaneous with a flash in the heavens. Now we cannot suppose, for a moment, that the wire was actually struck at the time each flash took place; and indeed it was observed that the sparks were produced when the cloud and flash were at the distance of several miles to the east of the line of the wire. The inevitable conclusion is, that all the exhibition of electrical phenomena witnessed during the afternoon, was purely the effect of induction, or the mere disturbance of the natural electricity of the wire at a distance, without any transfer of the fluid from the cloud to the apparatus.

The discharge between the two portions of the wire continued for more than an hour, when the effect became so powerful, that the superintendent, alarmed for the safety of the building, connected the long wire with the city gas pipes, and thus transmitted the current silently to the ground. I was surprised at the quantity and intensity of the current; it is well known, that to affect a common galvanometer with ordinary electricity, requires the discharge of a large battery; but such was the quantity of the induced current exhibited on this occasion, that the needle of an ordinary vertical galvanometer, with a short wire, and apparently of little sensibility, was moved several degrees.

The pungency of the spark was also, as might have been expected, very great. When a small break was made in the circuit, and the parts joined by the fore-finger and thumb, the discharge transmitted through the hand affected the whole arm up to the shoulder. I was informed by the superintendent, that on another occasion a spark passed over the surface of the spool of wire, surrounding the legs of the horse-shoe magnet at right angles to the spires; and such was its intensity and quantity, that all the wires across which it passed were melted at points in the same straight line as if they had been cut in two by a sharp knife.

The effects of the powerful discharges from the clouds may be prevented in a great degree, by erecting at intervals along the line, and aside of the supporting poles, a metallic wire, connected with the earth at the lower end, and terminating above at the distance of about half an inch from the wire of the telegraph. By this arrangement the insulation of the conductor will not be interfered with, while the greater portion of the charge will be drawn off. I think this precaution of great importance at places where the line crosses a river, and is supported on high poles. Also in the vicinity of the office of the telegraph, where a discharge, falling on the wire near the station, might send a current into the house of sufficient quantity to produce serious accidents. The fate of Prof. Richman, of St. Petersburg, should be recollected, who was killed by a flash from a small wire, which entered his house from an elevated pole, while he was experimenting on atmospheric electricity.

The danger, however, which has been apprehended from the electricity leaving the wire and discharging itself into a person on the road, is, I think, very small; electricity of sufficient intensity to strike a person at eight or ten feet from the wire, would, in preference, be conducted down the nearest pole. It will, however, in all cases, be most prudent to keep at a proper distance from the wire during the existence of a thunder-storm in the neighborhood.

It may be mentioned as an interesting fact, derived from two independent sources of information, that large numbers of small birds have been seen suspended by the claws from the wire of the telegraph. They had, in all probability, been instantaneously killed, either by a direct discharge, or an induced current from a distant cloud, while they were resting on the wire.

Though accidents to the operators, from the direct discharge, may be prevented by the method before mentioned, yet the effect on the machine cannot be entirely obviated; the residual current which escapes the discharge along the perpendicular wires, must neutralize, for a moment, the current of the battery, and produce irregularity of action in the apparatus.

The direct discharge from the cloud on the wire is, comparatively, not a frequent occurrence, while the dynamic inductive influence must be a source of constant disturbance during the season of thunder storms; and no other method presents itself to my mind at this time for obviating the effect, but that of increasing the size of the battery, and diminishing the sensibility of the magnet, so that, at least, the smaller induced currents may not be felt by the machine. It must be recollected, that the inductive influence takes place at a distance through all bodies, conductors and non conductors; and hence no coating that can be put upon the wire will prevent the formation of induced currents.

I think it not improbable, since the earth has been made to act the part of the return conductor, that some means will be discovered for insulating the single wire beneath the



surface of the earth; the difficulty in effecting this is by no means as great as that of insulating two wires, and preventing the current striking across from one to the other. A wire, buried in the earth, would be protected, in most cases, from the effect of a direct discharge; but the inductive influence would still be exerted, though perhaps in a less degree.

The wires of the telegraph are too small and too few in number to affect, as some have supposed, the electrical condition of the atmosphere, by equalizing the quantity of the fluid in different places, and thus producing a less changeable state of the weather. The feeble currents of electricity which must be constantly passing along the wires of a long line, may, however, with proper study, be the means of discovering many interesting facts relative to the electrical state of the air over different regions.

**Wilmington and Manchester Railroad,  
Or the Connecting Link between the Northern and the  
Southern Railroads.**

We hope there may be no relaxation in the efforts of those immediately on the line of this work—and hope also that capitalists and railroad companies at the north will give the subject not only their consideration, but also subscribe liberally to the stock.

At a general meeting of the stockholders of the Wilmington and Manchester railroad company, held at Marion C. H. South Carolina, on Wednesday, June 23d, 1847:

On motion of Gov. E. B. Dudley, Wm. Haynsworth, Esq., of Sumter District, was called to the chair.

Wm. H. Wingate, of Darlington, and R. B. Boylston, of Marion were appointed secretaries.

On motion of Gen. W. W. Harlee,  
*Resolved*, That the commissioners appointed to receive subscriptions to the capital stock of the company do report the amounts subscribed for, in their respective districts to the secretaries. Whereupon the following were reported:

Wilmington,	\$156,200
Columbus county, N. C.,	17,000
Marion district, S. C.,	46,600
Darlington district, S. C.,	42,600
Sumter district, S. C.,	57,300

**\$319,700**

On motion of W. A. Wright, Esq.,  
*Resolved*, That the report of the secretaries be received.

On motion of Hon. A. D. Sims,  
*Resolved*, That the stockholders present do report themselves to the secretaries of this body, and that the chairman call on those from the town of Wilmington and county of Columbus, N. C., and the districts of Marion, Darlington and Sumter, S. C., so to report themselves. Whereupon the stockholders present recorded their names.

On motion of G. J. McRae, Esq.,  
*Resolved*, That a committee consisting of one each from the town of Wilmington and Columbus county in N. C., and the districts of Marion, Darlington and Sumter, in S. C., be appointed to ascertain and report the

amount of stock represented at this meeting, and to verify proxies.

Under the resolution, the chair appointed Messrs. Alexander McRae, Alfred Smith, S. F. Gibson, A. D. Sims and Wm. Harris, who reported that 788 shares were represented in person, and 1712 by proxy, making in all 2500 shares represented.

On motion,  
*Resolved*, That a committee of two from each section represented at this meeting, be appointed to nominate a president and directors.

The chairman appointed Messrs. W. A. Wright, H. L. Holmes, Absalom Powell, Alfred Smith, W. W. Harlee, W. W. Durant, J. S. Gibson, Wm. H. Evans, W. Harris and J. E. Witherspoon.

On motion of H. Nutt, Esq.,  
*Resolved*, That the subscribers for stock in this company shall not be called on for payment in larger sums than 5 per cent. on the amount subscribed, nor at shorter intervals than three months; the second instalment to be called for in three months after the commencement of the work.

On motion of Gen. Harlee,  
*Resolved*, That in all contracts for labor or materials to be used in the construction of the road, preference shall be given to the stockholders.

On motion of Gen. McRae,  
*Resolved*, That when it shall be deemed advisable by the board of directors to put the road under contract that it shall be commenced at both ends, and that the expenditures at each end shall be in proportion to the amount subscribed in each State.

The meeting then adjourned until 9 o'clock A. M. to-morrow.

**THURSDAY, 9 o'clock A. M.**

The meeting was called to order by the chairman, and the proceedings of yesterday read and approved.

On motion of J. Eli Gregg, Esq.,  
*Resolved*, That a committee of seven be appointed by the chair to report what officers should be created by the company, and the salary to be allowed each. The chairman appointed Messrs. J. Eli Gregg, Alexander McRae, E. A. Lan, J. E. Witherspoon, H. Nutt, A. L. Scarborough and J. Maultsby to compose that committee, who recommended the establishment of the following officers with the salaries respectively attached.

A president, with a salary of \$2500 per annum.

A general Agent, \$1500,

A secretary and treasurer, (the duties of both to be discharged by the same person,) \$1500.

A chief engineer, \$2500.

A principal assistant, do., \$1500.

The committee further recommended that the time from which the services and salaries of these officers shall commence, shall be fixed by the president and directors.

The report was unanimously adopted.

On motion of Hon. A. D. Sims.

*Resolved*, That until the completion of the road, or until otherwise ordered, the necessa-

ry travelling expenses of the directors attending any meeting of the directory on business of the company, shall be paid by the company.

The committee appointed to nominate a president and directors of the Wilmington and Manchester railroad company recommended the election of the following officers.

**FOR PRESIDENT.**

Gov. E. B. Dudley, of Wilmington.

**FOR DIRECTORS.**

Henry Nutt, D. Fulton, John McRae, Sr., of Wilmington; J. Maultsby, of Columbus county; J. Eli Gregg, A. L. Scarborough, of Marion, C. H.; G. W. Dargan, J. S. Gibson, of Darlington, S. C.; J. J. Moore, R. B. Muldrow, of Sumter, C. H.

The report of the committee was unanimously adopted, and the above named gentlemen declared duly elected.

On motion of W. A. Wright, Esq.,  
*Resolved*, That a committee of three be appointed to draft bye-laws for this company, and that they make a report to the next general meeting of the stockholders. Under this resolution, Messrs. W. A. Wright, H. L. Homes and Alexander McRae were appointed.

On motion of A. J. De Rossett, Esq.,  
*Resolved*, That the next annual meeting of this company be held at Darlington C. H. South Carolina, on the first Thursday after the third Monday in June, 1848.

On motion of C. D. Evans, Esq.,  
*Resolved*, That the proceedings of this meeting be published in the Charleston, Wilmington and Sumter papers, and that 300 copies be printed in pamphlet form for distribution among the stockholders.

On motion of J. E. Witherspoon, Esq.,  
*Resolved*, That it be recommended to the board of directors to appoint agents to open books, and solicit subscriptions for stock, in the districts of Williamsburg and Henry S. C. and for the counties of Brunswick and Robeson N. C. and in the city of Charleston.

On motion of Gen. Harlee,  
*Resolved*, That the amount subscribed and paid for the preliminary survey of the routes shall be received in part payment of their stock by the persons who may have respectively contributed to the survey.

On motion of Hon. A. D. Sims,  
*Resolved*, That the thanks of this meeting be and the same are hereby returned to the chairman and secretaries for the courteous and efficient manner in which they have respectively performed their duties.

Adjourned sine die.

WM. HAINSWORTH, Chairman.

W. H. WINGATE, }  
W. B. BOYLSTON, } Secretaries.

**MEETING OF DIRECTORS.**

At the first meeting of the board of directors of the Wilmington and Manchester railroad company, held at Marion Court House, on Thursday, the 24th June, 1847, the following persons were present:

E. B. Dudley, president; H. Nutt, D. Fulton, Josiah Maultsby, J. Eli Gregg, A. L. Scarborough and J. S. Gibson, Directors.

*Resolved*, That the secretary and treasurer's bond shall be given for twenty thousand dollars, with security approved by this board.

*Resolved*, That William H. Wingate be, and is hereby appointed secretary and treasurer of this company, from and after the last Wednesday of July next.

*Resolved*, That John C. MacRae be, and is hereby appointed general superintendent of this company.

*Resolved*, That the books of subscriptions to the capital stock of this company be re-opened, under the direction of each of the directors, and also

At Lumberton, under the direction of Dr. McQueen, L. B. Williams and J. Lee.

In Williamsburg district, under the direction of Solomon Coward.

In Darlington district, under the direction of J. M. Timmons.

In Sumter district, under the direction of Col. Lacoster, Captain Harries and William Hainsworth.

In Brunswick county, under the direction of Duncan Moore, Wm. B. Robinson and Frederick Hudler.

In Charleston, under the direction of T. Harlee, W. C. Duke and E. L. Adams.

At Fair Bluff, under the direction of Absalom Powell and Augustus Smith.

And at such other places as the president and general superintendent shall designate and direct, and under such terms and conditions as they may think best.

The meeting adjourned to meet in Wilmington, on the last day of July next.

#### Richmond, Fredericksburg, and Potomac Railroad.

##### FOURTEENTH ANNUAL REPORT.

We have recently received the 14th annual report of this company, which shows it in a very prosperous condition. It is not as full in its details as we should like to see it; as we hold it to be due to the railroad interest from every road in operation, to publish such details as may be calculated to throw light in the way of others, upon the subject. There is too often a habit—we will not say a disposition—to withhold useful facts, the result of experience on every well managed road; and we shall be pleased to see the habit changed, for one of a greater detail.

We notice a change in the president of this road, and we hope it may promote the interest of the company—but he must be an able, and an experienced man, who promises to do it, and fulfils his engagement.

The meeting was organized at half past 12 o'clock, by calling JAMES LYONS, Esq. to the Chair, and the appointment of C. W. MACMURDO as Secretary.

The Chair appointed Messrs. Wm. H. Macfarland, Conway Robinson and Holden Rhodes a committee to examine such powers as may have been given by Stockholders to represent them.

The committee, after examining the proxies, made a report, which was approved by the meeting, and the proxies appearing by the report of the committee to be properly authorized, were empowered to vote as such.

It appeared that the whole number of votes which could be given was 2276 votes, of which were present the Board of Public

Works by their proxy, James Lyons, Esq., entitled to 554 votes, and individual Stockholders entitled to 1476 votes, making in all 2030 votes present.

The President and Directors made the following

##### ANNUAL REPORT.

The Board of Directors submit herewith the usual tabular statements, showing the condition of the Company on the 31st of March last, and detailed statements of the business of the past year.

It will be seen from them, that the income of the Company was \$206,858 52 for the year ending 31st of March last, being an increase of \$7,924 52 on that of the previous year, and the whole current expenses of the Company were \$86,742 53, leaving a net profit on the business of the year of \$120,115 99.

The amount paid on account of interest on loans and new stock was \$34,218 94, which, deducted from the amount of profit above stated, leaves a balance of \$85,897 05, out of which the Board declared, in November last, a dividend of  $3\frac{1}{2}$  per cent., and on the first instant, a like dividend of  $3\frac{1}{2}$  per cent., leaving a balance (to be passed to the credit of profit and loss) of \$34,797 05 on the operations of the year. The net profit above mentioned would have justified a larger dividend than that which has been made, but the stock of materials on hand had been reduced within the past year, in amount, about \$12,000—and the Board deem it the true policy of the Company to make no dividend, which there is not an almost certain prospect of being steadily continued. This principle is adhered to, in their opinion, by semi-annual dividends, for the present, of  $3\frac{1}{2}$  per cent. only. They trust, however, that the period is not far distant, when they can increase them without any risk of retrograding from the point which they may attain. In the meanwhile the situation of the company, in the opinion of the Board, abundantly justifies the issue to the stockholders of certificates of debt, convertible into stock, for a portion of the amount standing to the credit of profit and loss, under the authority given at the annual meeting of the stockholders in May, 1845. This they have directed to be done, to the extent of ten per cent. on the old stock, and the first ten dollars per share of the new stock.

The Board regret that the combination between the Baltimore Steam Packet Company and James River boats, adverted to in the last report to the stockholders, still continues. In an examination before a joint committee of the Legislature, during the past winter, it was admitted by the James River boats that they had received from the Baltimore Steam Packet Company, during the past summer, a bounty of seventy-five cents per passenger, on each passenger conveyed between Richmond and Norfolk and Old Point Comfort, in addition to their regular fare on James River, and that this bounty on local passengers, in addition to the increased proportion received by them on passengers between Richmond and Petersburg, and Baltimore, beyond their regular fare, was equiv-

alent to an advantage of from ten to twelve thousand dollars per annum to the James River boats. It is understood that even greater advantages have been allowed to the river boats by the bay company. It seems evident, under these circumstances, with such efforts made by a foreign incorporated company to divert the travel from the railroad line north of Petersburg, that the measures which were adopted by the Board of Directors of this company, and which were approved by the stockholders at their meeting in July last, were indispensable to its protection.

Application having been made to this company, since the last meeting of stockholders by the proprietors of Morse's patent for liberty to construct a telegraph line along the line of the railroad, the attention of the Board of Directors has been much drawn to the subject. Had the Board of Public Works deemed it judicious to take an interest on the part of the state in the telegraph, the Board of Directors of this company would, in a spirit of courtesy towards the Board, have granted the right of way to the telegraph company, subject to revocation on twelve months' notice. But they are satisfied that serious objections apply to such grant of the right of way. There is, in the opinion of the Board of Directors, no reason to doubt, that, ere long, other plans of telegraph will be introduced, equal and perhaps superior to that of Professor Morse. Had the right of way been given to the proprietors or purchasers of Morse's patent, the Board could not consistently have refused it to the owners or purchasers of other plans of telegraph, and the line of railroad might have become encumbered with the posts and wires of several lines of telegraph, and the danger of accidents from the falling of the posts and wires, and the entanglement of locomotives and cars in them, have become a serious one. On the other hand, the company, by declining a right of way to any telegraph company, but retaining to itself the benefits of its line and its police, so invaluable to a perfect telegraph, will, it is believed, ere long, be enabled to derive a handsome revenue from constructing and keeping in order on its road, a line of posts with as many wires as may be required for the most complete working of either one or more telegraphs; the wires to be worked by the patentees (or their assigns) of such plans as may be adopted, and the railroad company to share in the profits of the several telegraphs, in proportions to be agreed on. The Board of Directors are inclined to think, that on this, or some similar plan, the great advantages possessed by lines of railroad, for the construction and maintenance of telegraph lines, will be made available for their benefit, and that of the public. In this connexion they beg leave to refer to an accompanying editorial article, [marked A.] from the Railroad Journal of 10th April last, which seems to them to present some views entitled to much consideration.

Mr. Moncure Robinson, the late president of the company, having expressed a wish to retire. At a meeting of the Board of Direct-



ors, on the 2d of December, his resignation was accepted, and Mr. Edwin Robinson appointed the president of the company in his place. The letter of Mr. Moncure Robinson, communicating his wish to retire from the office of president, and the report of the committee to whom the same was referred, [marked B.] are herewith communicated for the information of the stockholders.

Signed by direction and on behalf of the Board,  
ED. ROBINSON, President.

Statement of the affairs of the Richmond, Fredericksburg, and Potomac Railroad Company from the commencement of the work to March 31, 1847.

*Cost of Road and Property.*

From Richmond to Aquia Creek.....\$1,459,334 81  
\$1,459,334 81

*Debts due to the Company.*

By individuals on new stock.....\$99,212 24  
By bills receivable.....45,321 07  
By post-office department and others in open account.....41,254 04  
By suspended debt.....13,569 22  
\$199,376 57

*Investments.*

Virginia six per cent. stock.....50 00  
Stock purchase.....19,826 98  
Stock Washington and Fredericksburg steamboat company.....23,000 00  
\$42,876 98  
Cash on hand 31st March, 1847.....39,968 03  
\$1,741,556 39

*Capital Stock.*

Subscribed by the state 2,752 shares.....\$275,200 00  
Subscribed by individuals 4,948 shares.....424,800 00  
7,000 shares old, Subscr'd by individuals 3,000 shares new.....300,000 00  
\$1,000,000 00

*Debts due by the Company of a permanent nature, and the interest payable semi-annually, viz:*

Bonds due in London in 1860, £67,500 sterling, proceeds.....\$324,005 61  
Bonds due in Philadelphia, 1851, and convertible.....30,000 00  
Bonds due in Philadelphia, 1850, and convertible.....60,000 00  
Certificates of debt issued for dividends, and due in 1869.....146,000 00  
\$560,005 61

*Debts due by Bond and Open Account.*

Bills payable.....\$2,583 18  
Louisa railroad comp'y.....23,995 42  
Other debts due in open account.....7,704 50  
Unpaid dividends.....3,159 35  
\$37,412 45

*Profit and Loss.*

Receipts from transportation since the commencement.....\$1,766,924 21  
Receipts from rents of real estate since the commencement.....4,224 03  
\$1,771,148 24

Off expenses of transportation and interest, and

interest on new stock and certificates of debt since the commencement.....1,314,597 91

Off dividends since the commencement.....312,412 00  
144,138 33

\$1,741,556 39

Richmond, 31st March, 1847.

C. W. MACMURDO, Treasurer.

Statement of receipts and disbursements within the year ending 31st March, 1847.

*Receipts.*

Cash on hand 31st March, 1846.....\$19,322 62  
Virginia six per cent. stock—received this amount.....3,512 82  
Capital stock—received of the stockholders.....20,231 56  
Washington and Fredericksburg steamboat stock—received this amount.....500 00  
Dividends unpaid—this amount.....2,327 75  
Rents of real estate—received this amount.....392 00  
Transportation—receipts from transportation.....206,466 52

*Disbursements.*

Cost of road and property—increased this amount.....\$3,615 74  
Stock purchase—invested this sum.....470 07  
Debts due to the company—increased this amount.....21,694 50  
Potomac road bonds—paid off in full.....200 00  
Debts due by the company—paid this amount.....15,056 66  
Transportation—expenses of transportation.....86,742 53  
Interest—paid this am't.....17,017 69  
Interest on new stock—paid this amount.....9,543 07  
Interest on certificates of debt—paid this am't.....7,659 18  
Dividends—paid this amount.....50,816 80  
Cash—on hand 31st March, 1847.....39,968 03  
\$252,783 27

Richmond, March 31st, 1847.  
C. W. MACMURDO, Treasurer.

DETAILED STATEMENT,  
Showing the income which accrued to the Richmond, Fredericksburg, and Potomac Railroad Company, from 1st of April, 1846, to 1st of April, 1847.

From Transportation.	Long Travel.	Local Travel.	Trans of the Mail.	For Freight.	Total.
April, 1846.	\$7,855 53	\$3,049 83	\$1,752 84	\$4,609 20	\$17,267 40
May, " "	9,453 91	3,554 94	1,752 84	4,633 18	19,422 87
June, " "	6,631 67	3,316 07	1,752 84	2,735 56	14,437 14
July, " "	6,475 21	4,226 69	1,752 84	2,935 47	15,390 21
August, " "	6,794 42	4,633 08	1,752 84	3,888 19	17,068 53
September, " "	8,268 17	4,312 92	1,752 84	3,251 62	17,585 55
October, " "	8,148 08	4,060 42	1,752 84	4,105 09	18,067 03
November, " "	6,579 36	2,788 83	1,752 84	4,550 13	15,671 16
December, " "	7,629 83	4,531 38	1,752 84	3,263 85	17,177 90
January, 1847.	7,835 56	4,328 94	1,752 84	2,184 06	16,101 40
February, " "	8,790 22	2,663 33	1,752 84	4,677 75	17,884 14
March, " "	11,531 16	2,977 92	1,752 84	4,171 27	20,433 19
	95,992 72	44,464 36	31,034 08	45,005 37	\$206,466 52

Total as above.....\$206,466 52  
Rents of real estate, received during the year.....392 00

Income for the year ending 1st April, '47, \$206,858 52  
Deduct current expenses for year ending 1st April, 1847.....86,742 53  
Net revenue, after payment of current expenses.....\$120,115 99

DETAILED STATEMENT,

Showing the current expenses from 1st April, 1846, to 1st April, 1847, paid out of the income of the Richmond, Fredericksburg, and Potomac Railroad Company.

Current expenses for the year ending 31st March, 1847.	1st April to 1st October, 1846.	1st October, 1846, to 1st April, 1847.	Total for twelve months.
Officers' salaries, embracing the president, superintendent, treasurer, and assistant treasurer.....	\$4,100 00	\$4,100 00	\$8,200 00
Office expenses, embracing printing, advertising, postage, newspapers, stationery, etc.....	278 14	305 95	584 09
Depot expenses, embracing compensation of agents, repairs, water rent in Richmond, and hands at country depots.....	6,016 38	5,526 95	11,543 33
Repairs of road, embracing timber, iron, compensation of managers and overseers, hire and support of hands, and support of hands, etc.....	10,890 39	13,234 65	24,125 04
Train expenses, embracing compensation and expenses of captains and engine drivers, and cost of wood and oil.....	8,863 73	11,188 41	20,052 14
Repairs of engines, cars, etc., embracing compensation of foreman of shops, workmen, and materials used in repairs, etc.....	13,137 86	7,289 22	20,427 08
Current contingent expenses.....	387 67	423 28	810 95
Omnibus account.....	500 00	500 00	1,000 00
	\$14,171 17	\$42,568 36	\$56,742 53

Annual Reports of the New York Railroads.

SARATOGA AND SCHENECTADY RAILROAD COMPANY.

Hon. N. S. BENTON, Secretary of State.

Sir—In compliance with a resolution of the Assembly passed February 2d, 1843, the Saratoga and Schenectady Railroad Company make their annual report to you as follows:

The Saratoga and Schenectady railroad, extending from the village of Saratoga Springs to the city of Schenectady, is 22 miles long.

The cost of construction is.....\$300,000 00

The receipts of the company from January 1st, 1846, to Dec. 31st, 1846, both days included, are

From passengers, on 17,150 through.....\$18,699 99

" " 18,827 way.....8,750 01

From freight.....4,668 74

The expenditures of the company for the same period are,

For repairing and running the road.....\$26,358 41

For dividend in January, 1846.....8,000 00

" December.....9,000 00

The number of locomotives is.....3

" passenger cars.....4

" freight cars.....10

" machine shops.....1

The average number of men in employment of company is..... 26  
The number of miles run by passenger trains (freight is run in same train with passengers) is..... 24,455  
L. R. SARGENT, Sup't.

#### SCHENECTADY AND TROY RAILROAD COMPANY.

In compliance with a resolution of the Assembly passed February 2, 1843, the Schenectady and Troy railroad company submit the following report for the year 1846:

Length of road in operation, 20½ miles.  
Cost of construction to January 1, 1846, \$641,540 02  
Expended for construction in 1846..... 2,007 54  
The receipts of the road from January 1st, 1846, to December 31st, 1846, both days included, are  
From passengers, 57,793 through..... \$27,997 96  
" 4,996 way..... 1,490 19  
From freight..... 6,730 88  
From mail and all other sources..... 570 00

The expenditures for the same period are,  
For repairing and running the road..... \$31,545 30  
Number of locomotives..... 3  
" passenger cars..... 7  
" freight cars..... 19  
" other cars..... 24  
" machine shops..... 1  
Average number of men per day for the year..... 25  
Number of miles run by passenger trains..... 51,253  
Number of miles run by freight trains..... 2,460  
Dividends, none.  
W. E. HALL,  
Treasurer and Accountant.

#### RENSSELAER AND SARATOGA RAILROAD COMPANY.

HON. N. S. BENTON, Secretary of State.  
In compliance with a resolution of the Assembly, passed February 2d, 1843, the Rensselaer and Saratoga railroad company make their annual report to you as follows:

The Rensselaer and Saratoga railroad, extending from the city of Troy to the Village of Ballston Spa, is 25 miles long.

The cost of construction is..... \$475,801 10  
The receipts of the road from January 1st, 1846, to December 31st, 1846, both days included, are  
From passengers, on 18,477 through..... \$18,856 63  
" 33,920 way..... 13,510 03  
From freight..... 8,183 61  
From mail..... 524 55  
From bridge tolls..... 9,210 85  
From other sources..... 248 40

The expenditures of the company for same period are,  
For repairing and running the road..... \$38,639 48  
For expenses toll bridges..... 2,829 75  
For dividend..... 9,000 00  
The number of locomotive engines is..... 2  
" passenger cars, 8 wheels..... 2  
" " " 4 "..... 13  
" freight cars 8 "..... 2  
" " 4 "..... 11

Average number of men in the employ of the company is..... 32  
Number of miles run by engines with passenger trains..... 28,426  
Do. do. horses do..... 8,585  
Freight is taken in same train with passengers.

L. R. SARGENT, Sup't.

#### LONG ISLAND RAILROAD COMPANY.

In compliance with the 37th section of the act of incorporation, passed 24th April, 1834, and certain resolutions of the Assembly, adopted the 2d February, 1843, the Long Island railroad company submit the following report for the year ending the 31st December, 1846.

Length of road (including the Brooklyn and Jamaica road of 11 miles under lease to this company) 96 miles.

Length of Hemsted branch road, 2½ miles.  
Cost of construction..... \$1,759,502 68  
Income from thro' passengers..... 45,406 98  
" local..... 96,673 18  
" freight..... 142,080 16  
" all other sources, including ferry across Long Island sound, & other steamers..... 24,974 96  
Total receipts..... \$295,727 85

Expenses for repairs of road..... 23,336 55  
Expenses for running of the road ferry and other steamers, etc..... 338,168 29  
351,504 84  
Paid on account of construction during the 1846..... 6,455 90  
Number of through passengers..... 23,921  
" way or local do..... 165,550  
Amount of dividends..... none.  
Number of locomotives owned by company 15  
" passenger cars " 23  
" mail " 2  
" baggage " 10  
" freight " 130  
" machine and smith shops 3  
" horses " 15  
Average number of men employed by the co. 230  
Number of miles run by passenger trains..... 156,000  
" " freight " 127,000  
DAVID S. IVES, Secretary.

#### Institution of Mechanical Engineers at Birmingham.

Continued from page 423.

May 18.—Mr. J. E. McCONNELL in the Chair.

"On the use of the Fan-blast for manufacturing purposes." By Mr. BUCKLE, the following papers were read:—

1. This paper described a series of experiments on the fan-blast, as applied to manufacturing purposes. They were made for the purpose of guiding the construction of the fan, so that the greatest quantity of air could be accumulated with the least possible expenditure of power. The original application of the fan was for the purpose of separating and dressing seeds, the speed and density of the air being limited to manual power. But since their application to smitheries and foundries, steam and other motive power have been used, their speed so increased that the density of the air ranges from 3 oz. to 12 oz. per square inch. Various forms of fans have been made, but the one generally preferred is called an eccentric, with three or six blades or arms radiating from the centre. This indispensable machine is one that has abridged much time and labor; the uniform stream of air admits of no comparison with the puffing blasts of the bellows or cylinder. The smith can heat his work with precision, proportion the size of his nozzle tuyeres to suit his work, without deteriorating the intensity of the blast, and in some instances it enables him to heat one piece of work while shaping another, the pressure of the blast ranging from 4 oz. to 5 oz. per square inch, with nozzle tuyeres 1½ inch diameter; but in a well-regulated smithy, the nozzle is fitted with nose-pipes as ferrules, varying from 1 to 3 in. diameter, to suit the quantity of blast required. An eccentric fan 4 feet diameter, the blades of which are 10 inches wide by 14 inches long, and running 870 revolutions per minute, will supply air at a density of 4 oz. per square inch, to 40 tuyeres of 1½ inch diameter each, without any falling off in density. In the first six experiments no discharge of air takes place, the velocity of the fan merely keeping the air at a fixed density or pressure per square inch due to that velocity. The remaining 26 experiments show the fan discharging air. An inspection of the table will show that, under various conditions of velocity of the tips of the fan, that

density of the air, and theoretical quantity of the air discharged, varies, but not in a direct ratio. The best results are obtained when the velocity of the tips of vanes coincide with the velocity, and 9-10ths of the velocity a body would acquire by falling freely the height of a homogenous column of air due to its density. This is what we have called the theoretical velocity; or, in other words, the greatest quantity of air is discharged by the fan with the least expenditure of power when the tips of the vanes move at these velocities.

In a recent set of experiments, the inlet openings in the sides of the fan-chests were contracted to 12 inches, and 6 inches diameter—the original diameter being 17½ inches. The results obtained were, that with the 12 inch openings, the power expended was 2½ to 1 compared to the openings of 17½ inches, the velocity of fan, the density of air, and the cubic discharged being the same. With the 6 inch opening the same results followed as with the 12 inch, only the density of air decreased one quarter. These experiments show that the inlet openings must be of sufficient size, that the air may have a free and uninterrupted action in its passage to the blades; for if we at all impede this action, we do so at the expense of power. Here follows a copy of the tables of 32 experiments, after which the paper gives the dimensions of fan employed in these experiments—namely, 3 ft. 10½ in. diameter; width of the vane 10½ inches; and the length 14 inches. The fan is eccentric 17-16th inches; the vanes are five in number, and are placed at an angle of 6° to the plane of the diameter. The inlet openings on the side of the fan-chest are 17½ inches diameter. The outlet opening or discharge passage is 12 inches wide and 12 inches deep; the space between the tips of the blades and the chest increasing from two-eighths of an inch on the exit pipe, to 3½ inches at the bottom, in a perpendicular line with the centre.

Mr. Buckle said, that he had found that the area of the discharge and density of the air corresponded very nearly. His object had been to show the quantity of the air discharged at a certain density, and the power it required to effect that result.

2. Another paper on the same subject, from Mr. JONES, of the Bridgewater Foundry, Bridgewater, was also read.

Mr. JONES observes—"There is, perhaps, no point upon which mechanics have had a greater variety of opinion than that of the application of the fan for manufacturing and other purposes; nor is there any other subject which has caused more disappointment; and I am decidedly of opinion that this has been principally occasioned by constructing the air passages too small in the fans, as well as the passages leading to the tuyeres. Facts are always better than opinions; and in offering the following statement, I merely give the result of six months' constant work. Two points of importance in the construction of fans are, an exact balance of the fan upon the axle, and a careful and judicious arrangement for getting up the speed so as to avoid



either tight straps, or any slipping up on the pulleys. With this I forward you a drawing of the fans I have constructed. You will perceive that I have the openings unusually large, but the results have fully justified the proportions. With these two fans we have been melting 50 to 60 tons of iron per day, at the rate of 5 to 6 tons per hour, with a consumption of coke of 208 lb. to the ton of iron; in addition to which there are upwards of 50 smiths' fires blown at the same time. The power required is about eight horses, the motion being taken from a 12 horse power engine by means of a 7 in. gutta percha belt, the shaft running at 73 revolutions per minute: the speed of the fan is about 750. They are driven by a pulley on each end of the spindle. This I think much better than a single strap. The openings at the side of the fans are 2 ft. 4 in. in diameter, and the outlets are 24 inches by 12 inches. The passage from the fan is 2' 9" by 1' 9", leading to a reservoir under the cupola 18' 0" by 7' 0" by 4' 0" deep, from which we have two tuyeres 6 inches in diameter. The pressure of blast is about 5½ oz. per inch. The only thing to which I wish to call your attention, is the increased size of the air passages; and when we consider the large quantity of iron melted, and the small proportion of coal used, the result is very satisfactory."

Mr. BUCKLE remarked, that his paper had been drawn up for the purpose of recording a course of experiments made during a series of years at his leisure, and which had been executed with the utmost care. The results were important to those who were about to adopt the fan, as teaching them that its size must be a matter of guess-work. When he himself had a fan made, all the advice he could obtain was, "Make it big enough." The parties who said so knew nothing about it. Had he been then in possession of the results of his subsequent experiments, he should have had his fan made only half its present size. He now found that all required was, that the tips of the fan should revolve with 9-10ths of the theoretical velocity. In driving the fan at that speed they would obtain the largest portion of blast at the least expenditure of power. By driving them at a greater velocity, the power was absorbed without producing a greater quantity of blast.

Mr. COWPER wished to know if the horsepower mentioned by Mr. Jones was indicated or commercial horse-power? Was it the same as that meant by Mr. Buckle?—Mr. Buckle said, he had ascertained the power by a dynamometer, having a spiral spring and a piston attached. Having ascertained the amount indicated by the engine when disconnected with the fan, he had deducted that amount from the amount shown in every experiment. The engine was nominally a 14 horse power engine. He had found that by a succession of fans, the first transmitting the blast to the second, and so on, he obtained by the third or fourth a pressure of 2½ lbs. on the square inch.

Alderman GEACH remarked, that this plan was in use at a furnace fitted up some three

or four months since in Derbyshire, where they proved that they could obtain a pressure of 2½ lbs. on the square inch, and that they could make better iron, and in a larger quantity than by the old plan. Mr. BUCKLE had not been previously aware that the plan had been tried, but he had ascertained that uniformity of the discharge was greater than that of the blowing cylinder, and the quality of the iron would be better.

Mr. HENDERSON said, that in the works in Scotland with which he was connected, they had a fan so badly constructed that they were about to have it altered, which, nevertheless, turned out 220 to 230 tons of casting per week. They had found that they could get something like double indicated power out of the ordinary Fairbairn's engine, compared with what it was sold for. He should like to know the proper form of the fan, the proper length of pipe, and the size of the pipe which conducted the blast from the fan to the place where they wished to use it. In Scotland they were working a shaft 200 feet long; and he should like to know whether they could effect their object by laying down underground piping instead of having a shaft to conduct the power to near the place where they wished to use it. They had enlarged the tuyere pipe, having ascertained that, in melting iron, the density of the air was not so important as the quantity, and that it was necessary that the air should be admitted in large quantities.—Alderman GEACH knew of one furnace where the cupola was 150 feet from the blast.—Mr. H. SMITH stated some experiments, which went to show, as the chairman remarked, that, putting the case in an extreme point of view, the further the blast was from the fire the better. The discussion was then adjourned, to afford an opportunity for further experiments.

3. "Heated Air." The next paper was from Mr. WILKINSON, who, the Chairman observed, had been so bold as to try a totally new plan for economising fuel, by introducing heated air into the boiler of a steam-engine, among the steam, by which the inventor estimated that he effected a saving of 20 to 25 per cent. in fuel. They had had steam and heated air separately, but this was the first attempt to combine them. The following are extracts from the paper:—

"It is an unalterable law of Nature that to produce a given quantity of steam, a given quantity of heat must be imparted to the water, and that in proportion to the steam required. Therefore, under the most advantageous circumstances, to produce an effect, a certain amount of combustion must necessarily be expended. Now I find, from repeated experiments, that water alone is not the most economic agent to work with; and, by way of elucidating this fact, I will explain one, and only one, though not the most successful of my experiments, and this was made on a six horse power high pressure engine, working in a manufactory of Mr. J. Burman, Cumberland-street, Curtain road, London. The principle consists in the injection of a stream of air, heated to the high temperature of 800, into the steam in the boiler—by which

means the temperature, and consequently, the expansive force of the steam was increased. To effect this object, an iron pipe or tube was bent in a serpentine form, so as to present a great extent of surface, and placed under the boiler, there to receive a red heat from the glowing part of the fire, after it had passed the bridge on its course to the flue. One end of this rarefying chamber was connected with an injecting air-pump, proportioned to the size of the cylinder of the engine. The other end was inserted by a continuation of the tube above the surface of the water into the steam in the boiler. The whole capacity of the tube was greater than the volume of compressed air which it received from each stroke of the piston of the pump, so that the air did not enter the boiler until it had acquired the full heat or nearly so of the red hot tube through which it passed. At every stroke of the piston the same quantity of cold air was injected into the tube. That part of the air which was next to the pump was forced into a hotter place, and the air which previously occupied that hotter place, was forced on to a still hotter one, and so on, until the furthestmost and hottest of all was discharged into the steam in the boiler. The pressure of air in the tube, strictly speaking, exceeded that of the steam in the boiler, for it was an excessive pressure that overcame the resistance in the boiler. That, at the commencement of each stroke the air in the cylinder of the pump was in equilibrium with the external air, and only opposed a resistance as it became compressed, and gradually increased its compressed force until it arrived at its maximum, which was the point of equilibrium with the compressed air in the hot tube and the resistance of the steam. Taking all things into account, the whole amount of power expended in working the pump was about 5 per cent. or 120th of the force which acted on the steam cylinder of the engine, and the result of the experiment showed that the application of the heated air caused a reduction in the quantity of coal consumed of from 25 to 30 per cent, and this was continued for several weeks, the engine of course working at its usual pressure."

The CHAIRMAN had his attention called to the subject by Mr. R. Stephenson, who wished him to try it in the locomotive on the line, but he had preferred to wait till he had ascertained whether the principle was economical, and whether the results could be depended on with a stationary engine.—Mr. COWPER had seen the invention tried, and observed that the engine worked slower with than without it; but, as the inventor considered the engine out of order, he would not express any opinion upon the value of the invention.

#### AITKEN'S IMPROVEMENTS ON THE STEAM ENGINE.

Mr. J. Aitken, of Newman street, has taken out letters patent for an important improvement in the steam engine, by constructing what he terms an atmospheric cylinder placed either over the air pump, or in any other convenient situation which may be fixed.

ed upon, with the view of easing the load on the latter, which is very serious in all engines. Through this atmospheric cylinder all the condensing water passes on its way to the condenser; atmospheric pressure is thus given to the piston, and the load of the air-pump counteracted. The action of the air-pump abstracts a considerable portion of the power of every description of condensing engine during the space the load is on; but in direct action, or pumping engines particularly, where there is no fly wheel to equalize the load, the advantage of the atmospheric cylinder will be great; for steam, equal to the load of the engine, and of the air pump, must be supplied from the beginning to the end of the stroke. Supposing the air pump to be 34 inches in diameter, the pressure on the piston would be 12,700 pounds at each stroke. Mr. Aitken estimates that the use of the atmospheric cylinder will give power to that extent; and the check of the air-pump being counteracted, the engine will work more steadily, and more safely. Another advantage of this additional cylinder is, that it extracts the air from the water, on its way to the condenser, before it becomes expanded by the heat of the steam; and the lowest benefit observed from this cause, was an improved vacuum in the condenser to the extent of three-quarters of an inch of mercury. A greatly increased quantity of water may be admitted to the condenser without inconvenience to the engine, the atmospheric cylinder giving power to discharge it from the air-pump in proportion to the quantity passing through it. The principal advantages arising from the application of the new cylinder are estimated as follows—viz: 1. The steam cylinder is relieved of the load of the air pump.—2. The vacuum of the condenser is greatly improved.—3. The movement of the fly-wheel, or the momentum of a steamboat, is rendered much more steady, on account of the resistance of the air-pump at each revolution, being counteracted by the atmospheric cylinder.—4. In cases where the condensing water can be brought in a pipe from a height, the power of the engine may be increased in proportion.—5. It will obviate the difficulty sometimes experienced when the condenser is too hot to supply itself with water—and, 6. In marine engines, there will be great advantage from the supply of condensing water, being in exact proportion to the speed of the engine. The entire gain, upon the average, from the application of the new cylinder, is estimated at 22½ per cent.—*London Mining Journal.*

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; J. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 1y

#### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

#### MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

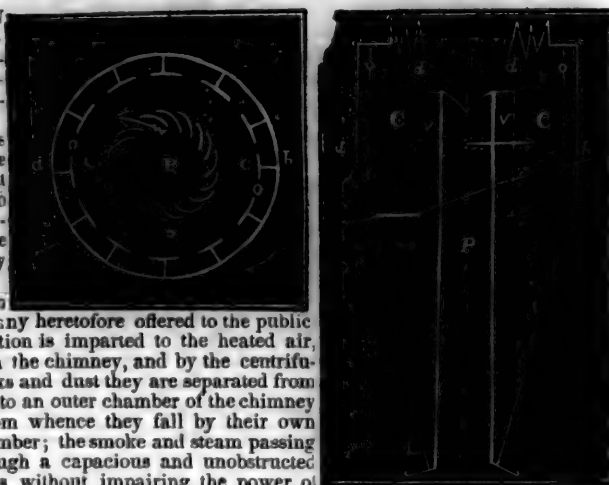
##### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, a45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

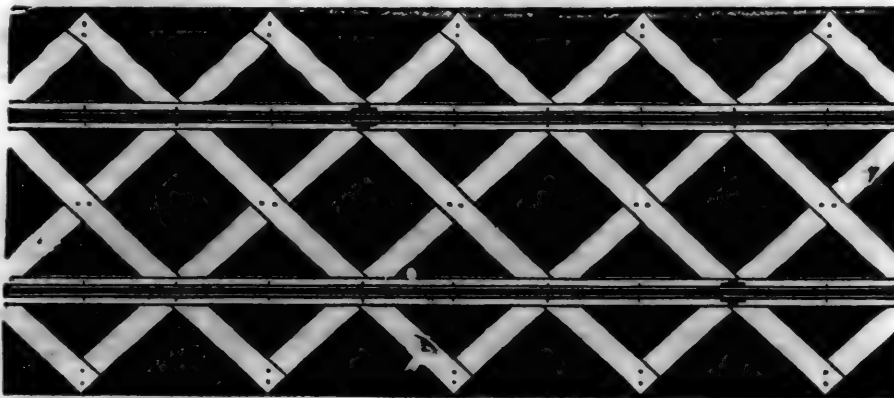
## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,324 Timbers, 11 ft. long, 3 x 6 inches =	
63,696 ft. b.m., at \$10 =	\$636 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge	600 00

Cost of one mile including the laying of the Rail ..... \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 331f

### LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

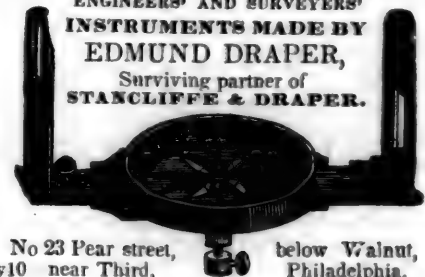
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

ENGINEERS' AND SURVEYERS'

**INSTRUMENTS MADE BY**

**EDMUND DRAPER,**

Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

West Troy, May 12, 1847.

ANDREW MENEELY.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

1y48

MURDOCK, LEAVITT & CO.,  
Agents.  
77 Pine St., New York.

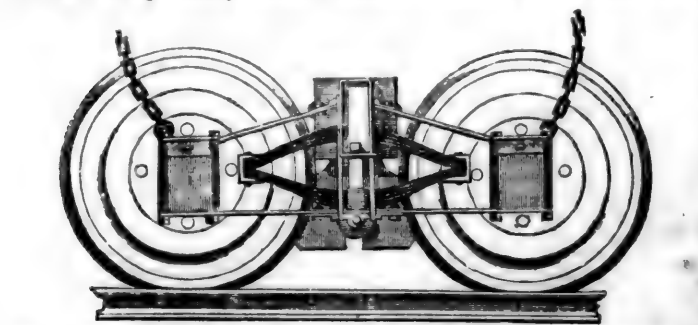
**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring M.I. and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAML. KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
Jan. 2. [11c] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad. To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10c

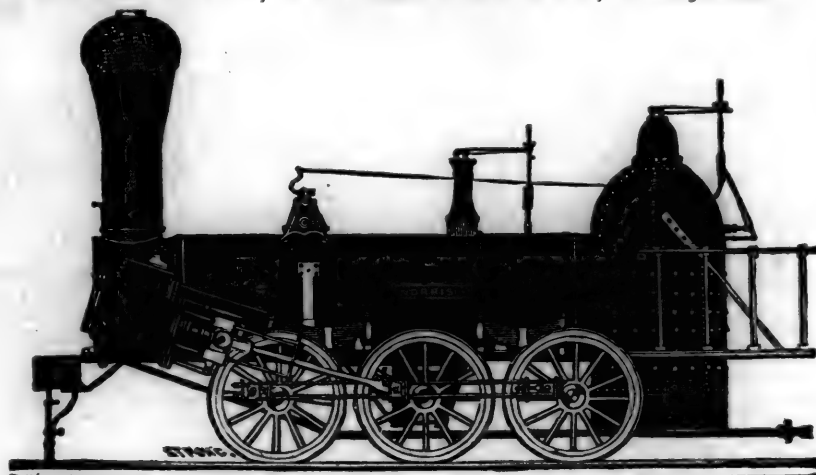
## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46c



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
 Peter Cooper, }  
 Murdock, Leavitt & Co. }  
 J. Triplett & Son, Richmond, Va.  
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Patton, Jr. } Philadelphia, Pa.  
 Colwell & Co. }  
 J. M. L. & W. H. Scovill, Waterbury, Conn.  
 N. E. Screw Co. } Providence, R. I.  
 Eagle Screw Co. }  
 William Parker, Supt. Bost. and Worc. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardiner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly.

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**  
 Warehouse S. E. Corner of Third & Walnut Streets,  
 PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**  
 Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL &amp; CO.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1st 10 New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address

SAML KIMBER & CO.,  
Willow Street Wharf,  
4th Philadelphia, Pa.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.  
ROBERT NICHOLS, Agent,  
26th No. 79 Water St., New York.

**NOTICE TO CONTRACTORS.—SEALED** Proposals will be received until Wednesday, July 15th, in the Borough of Harrisburg, and until Wednesday, July 22d, in the city of Pittsburg, at 10 o'clock A.M., at the Office of the Engineers, for the Grading and Masonry upon fifteen miles of the Pennsylvania Railroad, extending west from Harrisburg, and fifteen miles of said Railroad, extending east from Pittsburg. The grading will include very heavy work, and the amount of Masonry, including the Piers of Abutments of the Bridges across the Susquehanna, three-quarters of a mile in length, will be unusually large. Plans and specifications of the work can be seen at the Engineer's office in each place, for ten days previous to the time appointed for receiving the bids. Any further information can be had upon application to the Chief or Associate Engineers. S. V. MERRICK, President.

**MICHIGAN CENTRAL RAILROAD.—NOTICE TO CONTRACTORS.**—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of Col. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors. J. W. BROOKS, Supt.

Michigan Central Railroad Office,  
62d Detroit, June 17, 1847.

**CONCORD RAILROAD.—PASSENGER** Trains in connection with the Lowell & Nashua Railroads, run daily between Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

26th N. G. UPHAM, Supt.

**NEW YORK AND ERIE RAILROAD LINE**  
SUMMER ARRANGEMENT. For passengers, twice each way daily,

(except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For MILK—Leave Otisville at 5 1/2 o'clock, morning and evening.

For FREIGHT—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10 1/2 o'clock, A. M.; Middletown at 11, A. M.; Goshen at 12 1/2, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For further particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24th H. C. SEYMOUR, Sup't.

**WESTERN RAILROAD.—ON AND AFTER** Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.  
Albany at 7 1-4 a. m. and 5 p. m. for Boston.  
Springfield at 8 1-2 a. m. and 1 p. m. for Albany.  
Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7 1/2 a. m. and 7 p. m. For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 9 1-4 a. m., 1 and 3 p. m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.  
C. A. SEAD, Agent, 27 State street, Boston.

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington.—Leaves Boston every day, except Sunday, at 5 o'clock p. m.

Accommodation Trains—leave Boston at 7 and 10 1/2 a. m. and 4 p. m., and Providence at 7 1/2 and 10 1/2 a. m. and 4 p. m.

Dedham trains, leave Boston at 8 a. m., 12 1/2, 3 1/2, 6 1/2 and 9 p. m., Leave Dedham at 7 and 9 1/2 a. m. and 2 1/2, 5 1/2 and 8 p. m.

Stoughton trains, leave Boston at 11 1/2 a. m. and 5 1/2 p. m. Leave Stoughton at 7 10 a. m. and 3 1/2 p. m.

All baggage at the risk of the owners thereof.

25th W. RAYMOND LEE, Sup't.

**NEW YORK & HARLEM RAILROAD**  
CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars

will run as follows, until further notice. Up trains will leave the City Hall for—Yorkville, Harlem and Morrisana at 6, 8 and 11 a. m., 2, 2 30, 5 and 7 p. m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a. m., 4 and 5 30 p. m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a. m. and 4 p. m.—Freight train at 1 p. m.

Returning to New York, will leave—Morrisiana and Harlem, 7, 8 20 and 9 a. m., 1, 3, 4 30, 6, 6 28 and 8 p. m.

Fordham, 8 08 and 9 15 a. m., 1 20 and 6 15 p. m.

Williams Bridge, 8 and 9 08 a. m., 1 10, 6 08 p. m.

Tuckahoe, 7 38 and 8 25 a. m., 12 55 and 5 52 p. m.

White Plains, 7 10 and 8 35 a. m., 12 50, 5 35 p. m.

Pleasantville, 8 15 a. m. and 5 15 p. m.

Newcastle, 8 a. m. and 5 p. m.

Mechanicsville, 7 48 a. m. and 4 48 p. m.

Croton Falls, 7 30 a. m. and 4 30 p. m. Freight train at 10 a. m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a. m. and City Hall 1 p. m.

Returning, leave Croton Falls 10 a. m. and 9 1/2 p. m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a. m., 4 p. m.

Croton Falls for City Hall, 7 30 a. m., 4 30 p. m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a. m. and 5 30 p. m.

White Plains for City Hall, 7 10 and 8 35 a. m., 12 30 and 5 35 p. m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87c., to Newcastle 75c., to Pleasantville 62c., to White Plains 50c.

25th

**LONG ISLAND RAILROAD COMPANY.** Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a. m. for Farmingdale, 1 1-2 p. m. for Greenport, at 4 p. m. for Farmingdale.

Leave Farmingdale at 7 a. m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a. m. for Brooklyn.

Leave Jamaica at 8 a. m. for Brooklyn, at 1 p. m. do., at 4 1/2 p. m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p. m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a. m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a. m. for Brooklyn—leave Brooklyn at 6 p. m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a. m. for Farmingdale; leave Farmingdale at 4 p. m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a. m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

25th DAVID S. IVES, Sup't.

**PATERSON RAILROAD** Summer Arrangement. Commencing April 20th, 1847, the cars will leave

PaterSON at New York at

8 o'clock a. m. 9 1/2 o'clock a. m.

11 1/2 o'clock a. m. 12 1-4 o'clock p. m.

4 o'clock p. m. 5 1/2 o'clock p. m.

On Sunday, 8 o'clock a. m. 9 1/2 o'clock a. m.

4 o'clock p. m. 5 1/2 o'clock p. m.  
Office 75 Courtland St.



**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
31 ly Ticket Office, 63 North st.

**BOSTON AND MAINE RAILROAD.**

Upper Route, to Portland and the East.  
SUMMER ARRANGEMENT,  
April 1, 1847.

**PORTLAND TRAINS.**

Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**

Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that *personal*, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

ly31

CHAS. MINOT, Sup't.

**NORWICH AND WORCESTER RAILROAD.**

Road. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.  
New York Train via Steamboat.—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't

**PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.**

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A.M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and	\$3 00
" Reading, 58		2 25 and	1 90
" Pottsville, 34		1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8½

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. No line on Sunday. Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE, Engineer and General Superintendent.

**CONNECTION BETWEEN THE BOSTON AND LOWELL AND THE BOSTON AND MAINE RAILROADS.**

On and after April 1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. WALDO HIGGINSON, Agent.

**NEW YORK AND PHILADELPHIA RAILROAD line—direct.**

Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4 " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25½

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD.—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....\$1 00  
" " " Xenia.....1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains run in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47½ W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 39 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12½ at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 35½

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35½





# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 29.]

SATURDAY, JULY 17, 1847.

[WHOLE No. 578, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, July 17, 1847.

We desire to express our thanks to those friends who have remembered that a Journal like ours—devoted mainly to a particular interest, and of a comparatively limited circulation—requires prompt payment of its subscriptions to meet its necessary expenses; and also to those who so promptly responded to our recent call; but we are under the necessity of again requesting those subscribers at a distance—with whom we can only communicate by letter, or through the Journal—to remit the amount of subscription by mail—at our risk—as early as convenient, and thus enable us to keep the wheels in motion.

### The Rappahannock Canal.

We find, in the Fredericksburg News, the following notice of "the Rappahannock canal"—which we suppose means a canal around the falls on the Rappahannock above Fredericksburg—and we are pleased to learn that another obstruction to the navigation of our rivers is to be removed. Small means, judiciously laid out, will often accomplish great good to the agricultural community; such we hope will be the case in this instance. The editor says: "This improvement, which we believe is destined to work untold benefits to our town, is now progressing towards its completion as fast, as under the circumstances, we could expect. We visited a few days ago, the lower section, and was delighted with that portion of the work which had been partially finished. The first lock, at or near Minor's dam, is the most beautiful and durable specimen we have ever seen of that kind of workmanship. Indeed the canal, so far as we are qualified to judge, is well executed, and gives assurance that the floods may come and the rains beat against it, and it will

long stand a monument to the wisdom and foresight of its projector. In a conversation with its experienced and talented engineer, we are pleased to learn that the probability is, the work will be finished by the 1st of October; thereby affording the farmer in the upper country, facilities for bringing his wheat crop to market the ensuing fall and winter."

### Receipts on the Central and Pontiac Railroads.

The following receipts of principal articles over the Central and Pontiac Railroads during the month of June, are furnished by the Detroit Advertiser:

#### Central Railroad.

Flour.....bbls.	4,242	Whiskey.....bbls.	25,692
Wheat.....bush.	10,664		
Wool.....lbs.	117,807		

#### Detroit and Pontiac Railroad.

Flour.....bbls.	4,242	Whiskey.....bbls.	79
Ashes.....cks.	184	Seeds.....cks.	6
Oats and corn..bu.	531	Bran and meal,cwt	7,600
Hides and skins,"	250	Saleratus.....lbs.	9,429

### Commerce of Milwaukee.

The arrivals and clearances at the port of Milwaukee, from April 12th to July 1st, 1847, and the number of barrels bulk of passenger's goods, and number of tons of merchandise landed were:

Steamboats, propellers, brigs, and schrs.....	343
Number of passengers.....	10,890
Number of bbls. bulk of passenger's goods.....	21,476
Number of tons merchandise.....	2,786

### Railway to China.

We find in the Railway Record, of June 5th, a suggestion for a railway through Europe to China. It says that "Mr. S. B. Rodgers, of Nantyglo, has published a pamphlet on the practicability of constructing 10,000 miles of railway through Europe and Asia, and thus connecting London and Paris with Canton and our East India possessions, and all the great cities and provinces on its route. The route proposed is by Paris, Munich, Vienna, Belgrade, and Constantinople; thence through Syria, Persia, Beeloochistan, and Scinde, to Oodipoor, Calcutta, through the Berman empire, and the north part of Cochin China, to Canton."

This beats Mr. Whitney's project of a railroad to Oregon, by many thousand miles.

### Splendid Car.

The Baltimore and Susquehanna railroad company, have, we understand, just placed a new passenger car on the road, of a very splendid description. The body is of a dark claret color, highly finished, and the interior is splendidly furnished with curtains of crimson cut velvet. This car has been

manufactured entirely at the shops of the company, under the management of Mr. Millbolland.

### A Locomotive Astray.

The Springfield Gazette says that the engine designed for the passenger train from Greenfield to Springfield, on Saturday morning, having been "fired up" as usual, started off alone in consequence of some defect, while the engineer was getting his breakfast, and ran with considerable speed to South Deerfield, a distance of eleven miles, and stopped, the steam having been exhausted. The engineer started to overtake it at first on foot, but being soon distanced, procured a horse, and drove down to S. Deerfield, fired up again, and came through with the train to Springfield—40 miles—in 70 minutes, including all stops, save one at Northampton.

So much for leaving a horse in the street, without being made fast.

### Railway Stations.

In England, railway stations cost something, according to the Liverpool Journal, which says that "Mr. Brassey has taken the contract for the Chester station at £90,000."

As soon as the Newcastle and Berwick railway is opened, the whole distance between Edinburgh and London, by express trains will, says the Newcastle Journal, be accomplished in thirteen hours.

### Chesapeake and Ohio Canal.

The stockholders of the Chesapeake and Ohio canal company, at a general meeting, held at the Exchange Hotel, Baltimore, recently, selected the following gentlemen for the management of the affairs of the company for the ensuing year.

President.—Col. James M. Coale.

Directors.—Dr. S. P. Smith, of Allegany county; Geo. Schley, of Washington county; W. C. Johnson, of Frederick county; J. Pickell, of Baltimore city; W. A. Bradley, Washington, D. C.; Henry Dangerfield, Alexandria, Va.

The earnings of the Harlem railroad have been for the first 14 days of July.....\$14,261  
Same time last year.....9,687

Increase.....4,574

The New Jersey railroad company have declared a dividend of 3½ per cent.; the Delaware and Raritan canal and Camden and Amboy railroad co. a semi-annual dividend of 6 per ct.; the Philadelphia and Trenton railroad co. 3 per ct for 6 months.

The Auburn and Rochester railroad company, for the purpose of providing means with which to relay their track with the heavy iron rail, have concluded to increase their capital stock.

**Connecticut & Passumpsic Rivers Railroad.**

We have received a pamphlet containing the following in relation to this railroad—and as little, comparatively, is known at the south and west in relation to the resources of this part of Vermont, we give it a place in the Journal.

Incorporated by the Legislature of the State of Vermont—authorized to construct a railroad from the mouth of White river in Hartford, Vt., (opposite the town of Lebanon, N. H.) following the valley of the Connecticut and Passumpsic rivers to the North Line of the State at Derby.

At the mouth of White river it forms a junction with the Northern and Vermont Central railroads.

**THE ROUTE**

Of the Connecticut and Passumpsic Rivers railroad for 75 or 80 miles from the mouth of White river, as will be seen by the accompanying map, is more direct than that of any other railroad of equal length in the northern or middle States. Thence north, between the town of Burke and the line of the State at Derby, three different routes have been proposed, only one of which has been surveyed. The results are favorable as shown by the map. An examination of the other proposed routes may result in a reduction of grades and an essential diminution of distance.

The valley of the Connecticut and Passumpsic rivers, north of White river, forms the natural business centre, and the outlet of one of the best agricultural districts in New England, abounding also with available water power to any desirable extent. *More than twenty business villages*, many of them of considerable importance, are located upon the immediate line of the road within the first 75 miles.

The first 40 miles, between the mouth of White river and the village of Wells river is under contract, and will be completed early in the fall of 1848. The maximum grade upon these 40 miles is 26.4 feet per mile.

This division of the road being in the most wealthy and populous portion of Connecticut river, north of Greenfield, Mass., and reaching at Wells river a central point for a widely extended district, must prove immediately productive, and will ensure the extension of the road beyond. Indeed the local business upon the line as far as St. Johnsbury, twenty miles north of Wells river, is sufficient to ensure ample profits upon the investment, irrespective of the connection with the Canadian road.

The northern portion of the route passes through an equally productive country to Canada line, where it will connect with the St. Lawrence and Atlantic railroad, leading thence to Montreal.

**THE CHARTER.**

The act of incorporation is liberal and ample. The capital may be increased to \$3,000,000. The rates of toll may be established by the directors—"Provided, however, that the supreme court on an application, etc. may alter or establish the rates of toll for a term not exceeding ten years at any one time, and in such a manner that said corporation

shall not receive less than twelve per centum per annum."

**\* AGRICULTURAL PRODUCTIONS.**

The following table of agricultural products is taken from the United States census of 1840. It embraces the counties of Caledonia and Orleans in Vermont, and—for the purpose of instituting a comparison—the county of Worcester in Massachusetts. Worcester county has been selected as being very generally known, and ranking high as an agricultural district.

	Caledonia county, Vermont.	Orleans county, Vermont.	Worcester county, Mass.	Average valuation.
No. of Towns...	17	20	55	.....
Population....	21,891	13,634	95,313	.....
No. of horses...	5,852	3,462	10,657	\$75 00
No. of cattle....	32,668	18,299	67,667	15 00
No. of sheep....	100,886	46,669	26,128	1 50
No. of swine....	18,991	9,750	26,272	7 00
Bushels of wheat	52,109	33,315	45,759	1 25
Bushels of oats...	342,433	133,301	375,471	35
Bushels of rye...	1,799	2,400	84,914	75
Bushels of corn...	52,350	20,186	372,591	75
Bush. of potatoes	1,066,848	569,855	1,146,092	20
Pounds of wool...	183,198	107,580	70,059	35
Pounds of sugar...	665,397	507,446	00	7
Products of dairy	\$215,377	\$104,606	\$511,073	.....
Tons of hay....	67,077	37,291	124,737	10 00

The value of these products varies in the different counties, but for the purpose of instituting a comparison, an average valuation has been assumed—and at the prices indicated, the county of Caledonia, with a population of 21,891, and an area of 700 square miles, exhibits in the aggregate a valuation of \$2,045,306—equal to \$93.43 for each inhabitant.

And the county of Worcester, with a population of 95,313, and an area of 1500 square miles, a valuation of \$3,458,919—equal to \$36.30 for each inhabitant.

It is admitted that the proportion of the whole population engaged in agricultural pursuits is less in Worcester than in Caledonia county, but in proportion to the amount produced, the number thus employed is obviously much greater.

Again—while in Worcester county the agricultural resources are pretty fully developed and no considerable increase can be expected in the articles enumerated—in Caledonia co. probably less than one-third of the arable land is yet cultivated, and no doubt, with a railroad communication to the markets, the time will soon arrive when these articles of produce will be fourfolded.

Indeed, the increase has already been very considerable since 1840, and the capabilities of the county with its present population are adequate to a still greater increase, if the means for transportation to market were such as to encourage the production of a surplus.

These remarks have been confined to Caledonia county for the sake of the comparison with a well known district in Massachusetts, but they are equally applicable to the whole region traversed by the Connecticut and Passumpsic Rivers railroad.

**MINERALS.**

Iron ore is found at several places along the line of the route, both in Vermont and New Hampshire. "In Piermont occurs an important bed of micaceous specular iron ore,

which was examined with great care. The beds of ore vary in thickness, from a few inches to three or four feet. An analysis shows the following result. In 100 grains

Per oxide of iron.....	93.5 grains.
Titanic acid.....	3.8 "
Silica.....	2.7 "
	100.0

Equal to 64.8 per cent. of pure metallic iron."

**—Dr. Jackson's Geological Report.**

The Franconia iron works, twenty miles from Wells river are well known.

At Troy, Vt., occurs an extensive vein of magnetic iron ore. "It is," says Mr. Adams in his geological report, "a nearly perpendicular vein which conforms in direction to the general direction of the serpentine range, and has been traced with more or less interruption for the distance of two miles. It is from three to five feet wide, and does not appear to be in danger of being exhausted in the direction of its length or depth.

In 1844, 600 tons of pig iron and castings were made at the Troy furnace, and machinery has since been erected for the manufacture of wrought iron.

Analysis—Peroxide of iron.....	81.20
Protoxide of iron.....	13.37
Titanic acid.....	4.10
Silica.....	1.33
	100.00

Metallic iron.....66.62."

**Lime Stone** and shell marl are common in most of the towns on the Vermont side of Connecticut river, and extensive quarries of lime stone exist in Haverhill, Lisbon, Orford, Lyme and other towns on the New Hampshire side of the river. According to Dr. Jackson, the lime manufactured at Haverhill compares favorably with the Thomaston lime. An analysis of the rock shows 55.729 per cent. of pure lime.

**Free Stone.** "Two miles north of Oxford," says Dr. Jackson, "occurs an immense bed of compact talcose slate, which answers perfectly for soap stone, and is quarried to some extent, but may by proper management be made to furnish an almost unlimited quantity of that valuable material."

**Copperas.** In the town of Strafford, Vt., some 2000 tons of copperas have been manufactured per annum and sent to the Boston market. The quantity is to be increased the present year to 4000 tons, and the ore is inexhaustible.

**Roofing Slate** of good quality is found in the town of Thetford, Vt., near the line of the railroad.

**STATISTICS OF FREIGHT.**

Nearly accurate statistics of freight to and from market in the towns which will be tributary to the Passumpsic railroad have been obtained. These towns embrace the counties of Caledonia, Orleans, Essex, and half the county of Orange in Vermont, and the towns bordering upon Connecticut river in the counties of Grafton and Coos, N. H.

These freights, it should be noticed, have occurred while the average distance of transportation by teams was 80 to 100 miles.

A glance at the map will show that the amounts of freight in the different sections



embraced have not been in proportion to the population, nor do they indicate the relative productiveness of the soil. But they are in proportion to the relative proximity of the towns to railroad or water communication.

According to well established data, the amount of freights and travel upon any thoroughfare will be immediately quadrupled upon extending to it railroad facilities.

While therefore this result may be confidently expected in the present case, the prospective increase of business after the completion of the railroad must be rapid and almost unlimited, in view of the capacity of the country for agricultural productions and the immense water power along the line

	Valuation in 1846.	Population in 1840.	Tons of freight.
Nine towns in Orange county and one [Nor- wich] in Windsorco.	702,694 67	16,650	9,947
Caledonia county.....	830,982 83	21,891	10,047
Orleans county.....	435,839 34	13,634	5,045
Essex county.....	141,835 00	4,226	952
			25,991

Thirteen towns in New Hampshire border-  
dering upon Connecticut river..... 11,159

Tons..... 37,150  
The number of passengers in stage coaches which pass Haverhill and Newbury per year will vary little from 12,480.

The estimate of freights embraces agricultural products—merchandise, including salt, plaster, flour, etc.—copperas, lime and free stone, and manufactures except lumber.

The quantity of manufactured pine lumber ascertained to pass down the Connecticut at Newbury and Haverhill annually, is on an average 26,000 tons.

This article is greatly deteriorated by being rafted and lying so long in water as is required to reach a market—which consideration in connection with the uncertainty of the navigation of the river, the length of time required, and expense of tolls, raftsmen, etc., render it certain that all the most valuable kinds of lumber will be transported by the railroad as soon as it is completed. These statistics it will be seen have reference only to way freights along the line, to which should be added a further amount from the "Eastern Townships" of Canada which are to a considerable extent under a high state of cultivation.

But while this local business is important and will be continually increasing, it will embrace but a moiety of the business of the road when it shall have formed a connection with the Canadian railroads now projected and in course of construction.

**The St. Lawrence and Atlantic railroad,** extending from Montreal through the "Eastern Townships" to the line, is already under contract from Montreal to Acton, 45 miles, and the work of grading has been commenced. A portion of the iron for the track has been purchased, and this division of the road is to be completed in 1848. The construction of the remaining distance to the line will be prosecuted subsequently, coincident with the work on this side of 45°. This St. Lawrence and Atlantic railroad is authorized to construct a branch from a point below Sher-

brooke to connect their railroad with the city of Quebec. Sherbrooke is 30 miles from the northern terminus of the Connecticut and Passumpsic Rivers railroad, and the point for the intersection of the Quebec branch is nearly equidistant from Quebec and Montreal—about 85 miles.

The country being nearly level, and favorable for constructions, this branch to Quebec can hardly fail of being built; especially as it will form an avenue from that city not only to the Atlantic cities, but also indirectly to Montreal by railroad.

When these works shall have been completed, it will be seen that the Connecticut and Passumpsic Rivers railroad must do an extensive *through* business to Montreal, while it will form almost a direct line for passengers from Quebec to Boston, and, in connection with the lines in the valley of Connecticut, to the city of New York.

The amount of pleasure travel from the United States via Niagara Falls and Lake Champlain to the cities of Montreal and Quebec is very considerable and is annually increasing.

When, therefore, the lines of railroad now in progress of construction shall have been completed, it is reasonable to suppose that either in going or returning, a majority of this pleasure travel will pass over the Passumpsic line.

#### Annual Reports of the New York Railroads.

CATUGA AND SUSQUEHANNA RAILROAD COMPANY.  
To the Honorable the SECRETARY OF STATE, of the State of New York.

The Cayuga and Susquehanna Railroad Company, in pursuance of the sixteenth section of the act of incorporation of said company, beg leave to report:

That since the first day of Jan., 1846, the date of their last report, to the first of January, 1847, the amount of receipts for passengers and transportation upon said road, is seventeen thousand one hundred and fifty-eight \$9-100 dollars, (\$17,158 29.)

The expenses incident upon carrying passengers and transporting of goods, wares and merchandise upon said road, is six thousand eight hundred and one 44-100 dollars, (\$6,801 44.)

The expenses for repairs of road are five thousand five hundred and sixty-two 54-100 doll., (\$5,562 54.)

The expenses for repairs of locomotive and cars, are two thousand one hundred and ninety-three 58-100 dollars, (\$2,193 58.)

All of which is respectfully submitted.

DANIEL L. BISHOP.  
W. R. HUMPHREY.

ALBANY AND WEST STOCKBRIDGE RAILROAD COMPANY.  
Hon. N. S. BENTON, Secretary of State.

Sir—The directors of the Albany and West Stockbridge Railroad Company submit the following report, for the year ending December 31, 1846:

1. Length of the road in operation under the lease to the Western Railroad corporation, 38½ miles.
2. Cost of construction to Dec. 31, '46, \$1,777,019 57
3. No. of thro' passengers..... 76,412  
do way do ..... 37,914
4. The expenses for road repairs, including the repairs of buildings, ferry boat and docks in the city of Albany, paid by lessees..... \$17,500 62
5. No locomotives or cars of any description are owned by the comp'y.
6. No men or horses have been employed by the company.
7. One machine shop is owned by the company, at Greenbush.
8. The number of miles run by passenger trains of the lessees..... 57,503
9. The number of miles run by freight trains..... 102,979

10. The number of miles run by all other trains..... 15,182
11. There is no income. The lessees pay the interest on the bonds of the city of Albany, which amount to \$1,000,000, as rent.

MARCUS T. REYNOLDS, Pres't., &c.

#### HUDSON AND BERKSHIRE RAILROAD.

The Hudson and Berkshire Railroad Company, pursuant to Assembly resolutions of February 24, 1843, report as follows for the year ending December 31, 1846:

The length of said road in operation during the season 31 miles.

The original cost of constructing the whole, including outfit, and as heretofore reported.....	\$575,613 00
Amount paid for the construction and purchase of cars for the year 1846, about.....	5,400 00
Income for through passengers for '46 do way do do	2,852 00 5,385 82

Total income for passengers..... \$8,237 82

Income from freight and other sources, for 1846..... \$28,805 00  
Expenses of repairing and running the road for 1846..... 27,600 00

No. of thro' passengers for '46, 2,852 do way do do 14,796 do miles run by all trains.. 34,660 do locomotives used by the company during the year.... 4	
No. of passenger cars used by the company..... 3	
No. of freight cars used by the company..... 42	
No. of machine shops..... 1	
do horses..... 5	
do men employed by company during most of the year... 37	

All which is respectfully submitted this first day of January, 1847.

J. W. FAIRFIELD, Pres't.

#### TROY AND GREENBUSH RAILROAD COMPANY.

Hon. N. S. BENTON, Secretary of State.  
Herewith is submitted the report of the Troy and Greenbush Railroad Association for the year 1846, pursuant to a resolution of the Assembly, passed February 24, 1843.

The Troy and Greenbush Railroad, extending from the city of Troy to Greenbush, opposite the city of Albany, is 6 miles long.

The cost of construction to Jan. 1, '47, \$256,862 75 Received from 340,036 passengers.... 31,966 60 Received from freight..... 16,023 69 Received from other sources..... 661 15	
Expended for repairing and running road..... \$39,927 93 Expended on construction..... 23,491 36 Dividends..... 6,969 21	

The number of locomotives is..... 3 do passenger cars, (eight wheels,)..... 3	
Number of freight cars, double, (equal to single,) is..... 19	
Number of machine shops..... 1	
Average number of men pr day..... 40	
Number of miles run by passenger trains..... 47,873	
Number of miles run by freight trains..... 3,840	
Number of miles run by gravel and other trains..... 1,060	

H. STRATTON, Accountant.

#### NEW YORK AND ERIE RAILROAD COMPANY.

Hon. N. S. BENTON, Secretary of State.  
Sir—The directors of the New York and Erie Railroad Company submit the following report of their proceedings, and also of their receipts and expenditures, pursuant to the 19th section of the act incorporating the company, and in compliance with the resolution of the Assembly, passed February 24, 1843.

In the last annual report which contained a statement of the affairs of the company to the 30th of

September, 1845, it was stated that a subscription to the stock, amounting to more than three millions of dollars, as required by the act of the Legislature, passed May 14, 1845, had been procured up to Jan., 1847, the date of this report; there had been paid in instalments thereon \$385,391 15, and a further instalment of ten dollars on each share had been called for. By the provisions of the acts of May 11, 1846, the active operations of the company were confined to the short section of the road between Middletown and the Shawangunk summit, until the commissioners appointed by those acts should decide upon the location between the last named point and Binghamton. The work on that section was vigorously prosecuted, and the road was opened to Otisville, 62 miles from Piermont, on the first of November last.

The decision of the commissioners in favor of the level route on the Delaware and Susquehanna rivers, was communicated to the board of directors on the 25th of August last. The work on the road from Otisville to the Delaware river was immediately commenced, and proposals for grading 130 miles from Port Jervis to Binghamton were issued, and the whole line has been put under contract, on terms considered favorable to the company. The contractors have commenced work at numerous points in this state and in Pennsylvania, and it is expected the whole line will be completed during the summer of next year. Contracts have also been made for all the iron rails required for the road as far as Binghamton.

The grading of the branch from Newburgh to Chester was commenced last spring, and the work is now in progress.

All liens upon the property of the company, except the State lien, have been discharged.

The receipts of the company from all sources, from the 30th Sept., 1845, to Jan. 1st, 1847, were.....\$1,160,734 68

The expenditures during the same time, on account of construction and materials, repairs and running the road, and for all other purposes, were.....917,635 51

Leaving a balance unexpended, on the 1st of January, 1847, of.....\$243,099 17

Tabular statement relative to the New York and Erie Railroad, made to the Secretary of State, agreeably to a resolution of the Assembly, passed Feb. 2d, 1843, showing the business of the road for 1846.

Number of miles in operation, 62.  
Cost of construction (53 miles, including pier), to January 1st, 1846.....\$2,084,408 25  
Expended on 9 miles previous to 1846, 183,927 25  
do construction in 1846.....292,682 69

Total cost of construction, 62 miles, to 1st Jan., 1847.....\$2,561,018 56

Expenses for repairing and running the road, and ferry expenses.....\$123,173 97

Number of through passengers, 16,920  
do way do 86,368 1

Receipts from through passengers....\$19,637 87  
do way do 45,116 86

Total income from passenger....\$64,754 73

Income from freight and U. S. mail..\$120,761 75

No dividend has been made.

No. of locomotives.....9

do passenger cars.....9

do freight cars.....66

do mail and other cars....60

do machine shops.....1

do horses.....none.

do men (average) employed on the road.....134

No. of miles run by passenger trains.....58,793

No. of miles run by freight and other trains.....58,974

SHEPHERD KNAPP.  
THOMAS J. TOWNSEND.

#### NEW YORK AND HARLEM RAILROAD COMPANY.

In compliance with a resolution of the Assembly, passed February 2d, 1843, the New York and Harlem Railroad Company makes the following report:

The entire length of their road completed and in operation, is about 42 miles, extending from the City

Hall in the city of New York, to New Castle, in the county of Westchester. About eight miles is a double track, and the whole road run by steam is laid with heavy H rail, from 32d street to New Castle.

In addition to this, the company has completed the grading, masonry, and bridges upon the residue of the road in Westchester county, (about 11 miles,) upon part of which the superstructure and iron has been already placed, and the residue will be completed, and the whole road through Westchester put in operation as soon as the opening of the spring will permit the company to resume the laying of the track. The expenses of the extension of the road from White Plains to the Putnam line, already amounts to upwards of \$490,000, and when completed are estimated at \$570,000, the vouchers for which will be rendered to the comptroller in May next, pursuant to the act of the 11th of May, 1846.

Number of miles of road in operation, about 42.

Cost of construction of road from the City Hall to south side of Harlem river bridge, 8 miles, per mile.....\$104,375 00

From south side of Harlem river bridge to Williams' bridge, including bridge, 6 m., per mile.....38,475 00

From Williams' bridge to White Plains, 13 miles, per mile.....11,277 00

For a portion of the road graded under former contract, and not used, pr m. 1,384 00

From White Plains to Putnam line, 25 miles 82-100, present cost, per mile, 19,300 00

Total expenses of constructing the road from the City Hall to Putnam county, 52 82-100 miles.....\$1,702,077 88

Expense of running and repairing the road for 1846.....\$88,737 47

Total income from passengers.....\$170,923 44

do do freight.....11,882 27

.....\$182,805 71

Number of passengers through.....58,466

Number of way passengers no account kept, but estimated at.....1,450,000

Dividends none.

Number of engines.....8

do train cars.....21

do city cars.....21

do freight cars.....21

do baggage cars.....5

do machine shops.....1

do horses.....152

do men daily employed..150

Number of miles run by passenger and freight trains, no account kept.

JOHN H. DYKERS, Pres't.

#### Railway Accidents.

We copy an account of a serious accident which occurred on the London and Northwestern railway, near Wolverton, on the 5th of June. This appears to be one of those extraordinary accidents against which human foresight and care cannot always guard—and as it is of the utmost importance that renewed and constant vigilance should be exercised by all persons employed upon, as well as having charge of, railroads, we give the editorial remarks of several of the English railway journals, in the hopes that useful hints may be derived from them, and prove beneficial to our readers.

"London and Northwestern Railway.—

On Saturday night a fatal accident took place on the London and Northwestern railway, near Wolverton station, involving serious damage to property, the loss of seven lives, and injury to other passengers. The down mail train for Liverpool, consisting of nineteen carriages, started at a quarter before 9 o'clock on Saturday evening from the Euston square terminus, and was due at Wolverton at 15 minutes before 11. The train was heard approaching the Wolverton station at the proper time, and the signal, indicating that all was right for the train to enter the

station was hoisted, but, to the astonishment of the officers at the station, the train turned off into a siding, instead of coming down the main line, and in an instant after a fearful crash was heard. On the superintendent of the Wolverton station reaching the spot, a shocking scene presented itself. The mail train had entered the siding commencing near the bridge, usually appropriated to coal and merchandise wagons, and had come into collision with five or six wagons laden with coal. The fifth and sixth carriages of the mail train were literally smashed to pieces, and were strewn about the line, together with the passengers, while, singular to relate, the engine and tender, and all the carriages in front of them, which consisted of the Liverpool and Manchester parcels' vans, and two second class carriages, were almost uninjured. Seven persons who were in the sixth second class carriage were found either dead or dying, scarcely half an hour having elapsed from the time of the occurrence before they had all ceased to exist. Body after body was removed from the line to one of the anti-rooms of the Wolverton station, where they were at once seen by Mr. Rogers, surgeon, of Wolverton, in the employ of the company, and by two other medical gentlemen, who happened to be in the train at the time of the collision. From some cause, yet to be explained, the signal man appears to have gone to the points, a distance of forty or fifty paces, and to have turned the train into the siding. This error was not discovered by the engine driver until he had passed the points a considerable distance. Upon seeing the danger, he instantly applied the breaks, turned off his steam, and reversed his engine, and then both he and the fireman jumped off onto the embankment, and thus in all probability saved their lives. The train was at this moment going, it is stated, at a rate not exceeding ten miles an hour. The only explanation afforded by the signal man was, that he afterwards thought it was not the mail train but a luggage train, and he acted as he did for the purpose of securing its safety. This statement, however, being very much doubted, the superintendent of the Wolverton station felt it his duty immediately to give him into custody. From cards and other evidence discovered on the persons of the deceased parties, their names are supposed to be as follows:—Mr. J. B. Ratray, belonging to an iron foundry at Dundee; Mr. Miller, secretary of a London ragged school; Mr. James Clifton, supposed to be from Coventry; Mr. T. Mackinson, a collegian of Cambridge; Mr. T. Skerratt, and Mr. Cooper, not known where belonging to. The seventh is the body of a respectably attired young man, who had nothing upon him to lead to identity. The bodies were removed to an outhouse at the Wolverton station, where they now lie awaiting a coroner's inquest. In a collision attended with so fearful a loss of life it might be expected that many passengers would be injured, but the official report states that this is not the case. One gentleman had a rib injured, and two others were much shaken;—but with these exceptions the other passen-



gers were not seriously hurt. The guards of the train had a most miraculous escape. The chief guard, Haines, was actually sitting on the carriage that was destroyed, and on seeing that a collision was inevitable, threw himself, at all risk, off the top, down the embankment, and escaped unhurt. The second guard also followed his example and was uninjured. On Monday, an inquest was held on the deceased, and afterwards adjourned to Friday, when our reporter attended, but the evidence adduced yesterday has not thrown any new light upon the cause of the catastrophe. The train had the proper signal lamps, and was only two minutes before time. A white light was seen by the driver at the signal post, signifying that all was right, and immediately after, in consequence of the points having been shifted, the train rushed with a jerk into the siding. It is not true, as reported, that the driver and stoker threw themselves off the engine. They stood at their posts, at the imminent danger of their lives, up to the moment of the collision; and Mr. M'Connell, the locomotive superintendent, stated, that the courage and good conduct displayed by them and the guards would be strongly marked with approbation. Nothing has arisen to account for the extraordinary conduct of Fossey in shifting the points. As to his plea, that he mistook the train for a goods train, evidence was given that a goods train and a mail train never arrive at that station within half an hour of one another. At six o'clock, the coroner having intimated that the inquiry must be carried over to another day, our reporter left."

Herapath says, "Misfortunes," they say, "never come singly;" and so one would conclude, if we look at railway accidents. In the fall of 1841 the accidents poured in, one on the heels of another, with fearful rapidity. In the following year, about the same time, they did the same, and so they have at other periods. We have now a lamentable illustration of the trite truth of the old adage, in the fall of the Shrewsbury and Chester bridge, the running off of the Brighton engine, and in the dreadful accident of Saturday night, given in another column, on the London and Birmingham. In the last, seven lives have been lost by the wilfulness or madness of one man. It is useless to mince the matter; we can give it no other name than madness or wicked design. A man knows of a particular train coming, he sees it; for it was not dark—there is no real darkness at this time of the year; and he signals it as the train he expected, and yet he goes and turns the switches for a train of another description! However charitable we may be disposed, it is impossible to contemplate the matter, without coming to the conclusion that it was the effect of wilfulness or insanity.

The misfortune of this lamentable affair is that there is no guarding against it. Discretion, prudence and care on the part of directors, are all set at defiance by such conduct, and there is no way of dealing with it for the sake of the public, but as a proceeding of wanton wilfulness on the part of the switchman. Had it been an accident from not do-

ing his duty, we might find some extenuation in our mind, by imagining that the man had for the moment forgotten one part of it. But, no; he hears the train, he sees it, he signals it as the true train; and, instead of resting satisfied with that, which was his whole duty, and would have been all right, he goes and does more than was required, and directly contrary to what he had heard, saw, believed and communicated to others. It might be considered harsh to say, that it was wilfully done; but the only other explanation is positive madness, and against that rises up his having seen and signalled truly. We regret it much; but the safety of the public would lead us to take up the stronger feeling against this man, and to demand a corresponding punishment. If such matters are dealt with lightly, we have no security for the public. There are cases in which lenity is crime, we and verily believe it would be so here. We should not look at the individual, but the millions that are constantly travelling about on railways at the mercy of such men. Are their lives to be set at naught, and the multiple of millions more depending on them for support; there is an instance in this very accident of 500 men with their wives and families, amounting probably to 3,000, being thrown out of bread by the death of one of the unfortunate victims of Fossey's conduct! It is dreadful to think of the amount of mischief that one man may be the cause of over and above the immediate victims.

We have heard, but on no good authority, that the company have taken on themselves the expenses of the several funerals. They will no doubt do all they can to alleviate the misery that has been caused."

The editor of the Railway Record says—"The public mind has not yet overcome the astonishment and alarm caused by the terrible accident of Saturday night last. Those who have had the best opportunities of observing the detail management of the London and Northwestern company's lines, and comparing it with the system pursued in other great railway establishments, have so generally accorded the palm of superiority to the concern presided over by Mr. Glyn, that the mention of an accident, be the causes what they may, excites a much greater sensation than could be occasioned by a casualty on a line whose prestige for safety and careful superintendence was less confirmed.

The misfortune has certainly been a tremendous one; and its alarming character is not mitigated by the fact that (so far as appears from what has transpired up to the time at which we write) no human foresight could have adopted any plan for the certain and effectual prevention of such accidents. Whatever was the nature of the mistake or delusion under which the man Fossey acted, that mistake bespoke in itself, so utter a perversion of the faculty of rational distinction, that it is impossible to conceive any set of regulations that could secure the traveller from the effects of such insanity.

It is the inalienable condition of every description of extensive commercial operation, that its movements must depend, in various

stages, on the prudence and steadiness of an individual. The accommodation given to the public by the introduction of the locomotive engine, is, very essentially, a commercial transaction; quite as much so as was, in former days, the agreement between the passenger and stage coach proprietor, whereby the latter bargained to convey the former, for a given sum, between Birmingham and London. A drunken or careless coachman might, at any time have caused the death of every one committed to his charge. A mere twitch of the bridle—the turning of a horse's head out of the direct line of road—would have been sufficient to plunge the whole equipage down a precipice of frightful depth and to consign all to a sudden and dreadful death.

The contingency of this danger attended all coach travelling, and every passenger was necessarily subject to it. If a coachman had been seized with madness—if a driver of steady character had indulged in a stealthy fit of drinking, and, under the influence of that drink, had caused any such calamity as we have supposed—no one would have thought of making either the system of coach travelling, or the proprietors of stagecoaches blameworthy or responsible for the consequences. All that would have been uttered, would have been exhortation to the greatest care in the selection of the servants to whom such important duties were entrusted; and if satisfaction were afforded that reasonable pains had been exercised in this regard, it would have been universally acknowledged that everything had been done which the public safety and interest could require.

Now, a railway casualty should be judged by the same rule of consideration for the natural sequence of cause and effect. It will then be seen at once how unfair and unreasonable is the outcry that lays the blame of every accident at the door of some alleged negligence on the part of Managements. Examine the circumstances of the disaster of Saturday last. The train was proceeding regularly to its destination, when a policeman, named Fossey, actually altered the points of the siding from their proper position, in order to turn the carriages into it. No motive can be conceived that could have impelled the man to this act; it was an act which no one could expect or anticipate: it could no more have been provided against than could the murder of Mr. Perceval by Bellingham, or that of Mr. Drummond, four or five years ago, by the lunatic M'Naghten. It was one of those exceptional and isolated instances of infatuation for which we must always take the chances, and comfort ourselves with reflections on the infrequency of such evil developing itself. As Mr. Hudson observed very pertinently, a few evenings ago, in the house of commons, it would be well if the gentlemen who indulge in severe comments on such disasters would themselves favor the world with tangible suggestions as to the 'preventive' measures they call for. The truth is, that they cannot. To preclude the chance of such calamities, they must first contrive some prescription for making human

nature perfect; or must, at least, devise some mode whereby railway directors shall be enabled, by intuitive knowledge, to read the secret workings and impulses of the mind.

Our belief and conviction are, that the London and Northwestern company are as desirous as any party, parliamentary or otherwise, that every point bearing on the causes of the accident be cleared up. It is the interest of the company that this should be done, if they have fulfilled their duty and engagement to the country, viz: of taking due preliminary care with regard to the character of all the servants employed by them. This is the point whereon the question as to their conduct must revolve; and, as to this, we must await the issue of the inquiry.

This is the position of the London and Northwestern direction, in so far as relates to its accountability for the recent deplorable catastrophe. But we cannot too strongly insist on the importance of taking every available step for lessening the probability of such misfortunes. It is not to be forgotten that, however complete may be the power of a railway company to clear itself from the random charges which ignorance and malice are always ready to bring forward, the mere occurrence of frequent accidents is a circumstance tending in itself to create a public prejudice, which may operate very deleteriously to the railway interest.

The condition of the 'working establishment' on the London and Northwestern lines has long been subject of admiration to travellers; and we have reason to believe that there is no company less sparing of expense, for the purpose of maintaining a high state of efficiency in this department. But we entreat the management, and all those whom it favors with its confidence, to carry with them the fact, that the quality of the human agents is a point of even greater importance than that of the carriages, engines and rails. The finest 'stock' in the world will be worked with disgrace and disaster, where the servants are not endowed with prudence, experience and sobriety. Let every thing, then, be done to encourage steady and intelligent men—to retain those of proved experience and good conduct, and prevent them from seeking service with other establishments, through the disgust that ever springs from anything like favoritism or personal preference. There is no company more entirely in possession of the means for securing to itself the highest class of ability in all branches of its business—no company can better afford to reward faithful services, and to give its employees the most effectual stimulus—that of a feeling of personal and permanent interest—to the scrupulously diligent discharge of their respective duties. If, by such wise and really economic liberality, the occurrence of fatal accidents cannot be altogether precluded, the satisfactory position will at least have been attained that everything in the power of man has been done towards promoting the safety of passengers, and excluding even a pretext for the nonsensical and calumnious rigmaroles of the Sibthorps, and the Morrisons, and their 'kindred spirits.'"

#### Patent Law.

Extract from the last report of the Hon. Edmund Burke, Commissioner of Patents. It is a plain spoken document, and deserving of consideration by those who make use of the inventions of ingenious men without giving a fair consideration.

"In my last annual report I had the honor to submit to Congress a proposition for certain modifications of the existing patent law, which I deemed important and necessary for the protection of the inventor, as well as the public. A bill, embodying most of the modifications suggested, was reported in each House, by the committee having the matter in charge; but in consequence of the great amount of business pressing upon Congress at the last session, it failed to become a law.

"The bill provided for two important and essential changes in the existing law in relation to patents. One of those provisions was, that all suits brought by the patentee for infringements of his invention should be received by the courts trying the same, as conclusive evidence of his right to recover damages, until they were set aside by the institution and prosecution to final judgment of a process for their repeal. The other was a provision for the institution of a process for the repeal of letters patent which had been obtained by fraud, misrepresentation, or upon false suggestion, or which were void, in whole or in part, for want of novelty, or other cause. The very inadequate protection afforded to the patentee by the present law, seems to me to furnish sufficient reason for the proposed modification.

"After the rigorous and searching ordeal through which every invention passes at the Patent Office, it certainly seems reasonable that the letters patent, under the seal of one of the officers of the government of the United States, should be received in courts of justice as conclusive evidence of the title of the patentee to his invention and his right to recover, until his patent shall have been revoked and annulled for good and sufficient cause, by a tribunal competent to investigate the matter.

"But the present law extends no such protection to the patentee. At present his letters patent are only *presumptive* evidence of the novelty of his invention, and of his right to recover. Consequently, the validity of his patent may be, and for the purpose of embarrassment often is, put in issue in suits for infringement, and he is compelled to prove the novelty of his invention, over and over again, as often as the depredator upon his rights, whom he seeks to punish, is disposed to put him to that trouble.

Many instances of this wanton aggression upon the rights of the meritorious inventor have come to the knowledge of the undersigned since he has had the honor to be at the head of the Patent Office. And many of these instances of aggression proceed from wealthy and powerful companies and corporations, and the subjects of them are the inventors of the most useful and valuable machines and improvements. The more valuable the invention, the more liable it is to piracy and infringement. These wealthy

and powerful bodies know well the benefit to them of the law's delay, and its ruinous expense to the single-handed individual who dares to resist their unlawful and unjust invasion of his rights; and hence, in the end, they hope to win, either by the defeat of the patentee by means of some trifling defect in his title deed, or his inability to procure the necessary evidence to substantiate his right, or by a compromise, in which he will be forced to sacrifice a portion of his claims in order to relieve himself from the embarrassment and expense of the unequal contest.

"As the law now stands, the great burden of the controversy falls upon the patentee, and not upon the wanton violator of his rights, as it should.

"In this view of the matter I think all candid men will agree that when a patentee has established, in the judgment of the office or tribunal whose duty it is to pass upon his claims in the first instance, a right to letters patent of the United States, that document should be his shield and protection, until it is shown by others, who dispute his title, that he has no right to it.

"I am aware that there is a prejudice existing in the minds of a portion of the community (small, I believe it is) against the claims of inventors. It is contended by some, that patents, securing exclusive rights to the discoverers of new machines or processes of manufacture, are monopolies, operating to the detriment of the best interests of the community, and existing against the true policy of all just governments; and therefore are to be regarded with suspicion, construed with great strictness, and defeated if possible.

"I am fully persuaded that, on a little reflection, such a view of the rights of inventors will disappear from the minds of candid and reasonable men. What are the grounds on which all civilized and enlightened governments grant to persons making valuable discoveries in the arts and manufactures a limited monopoly of the benefits of their inventions? The main ground is to encourage discovery and invention—those great agents of social improvement—by securing to those who make them the profits which result from them, in order to enable them to remunerate themselves for their toils and expenditures, and to induce others to explore the vast and limitless field of invention.

"Every new discovery in science and art contributes to the wealth, convenience and comfort of individuals, and to the improvement of society. Some of the inventions of the last few centuries have burst upon the world with the brilliancy of the morning sun—changing the whole aspect of society, and conferring incalculable benefits upon the human race. I need only mention the art of printing, the discovery of gunpowder, the steam engine, the cotton gin, the spinning jenny, the power loom, the steamboat, the railroad, and the magnetic telegraph. These great discoveries in science and art have revolutionized the condition of the civilized world, and their influence at this moment is probably more potent and more sensibly felt than ever before.



"I mention these great discoveries as striking instances of the effect of the labors of the inventor upon society and civilization. There are others of less note, producing their due influence upon the condition and welfare of the world. Even the most humble discovery contributes its due proportion to relieve the human family of its burdens, and administer to its comforts, and to accelerate and aggrandize its unceasing triumphant progress in the improvement of its condition, and the expansion and perfection of its lofty nature and destiny.

"Therefore, there is ample reason why society should reward and encourage that class of its benefactors whose claims I am now considering, by securing to them, for a limited term, the exclusive enjoyment of the fruits of their genius and labors.

"But it cannot be denied that, upon the principles of abstract justice, the inventor has a complete and unquestionable claim to the fruits of his discoveries, until his labors and sacrifices are adequately remunerated.

"Many valuable and profitable discoveries in the arts are the result of a sudden and lucky conception in a happy moment; but most of them are the fruits of days and years of incessant toil, anxious and harassing thought, and great pecuniary sacrifices. This toil, this mental effort, and these pecuniary sacrifices, establish a title to the product which is their offspring, as sacred and irrefragable in the eye of justice as the title to his farm, his workshop, or his merchandise, which a man has acquired by his labor, skill and economy. So clear and convincing is the view of the right of the inventor to the fruits of his genius and labor, that argument in its support would seem to take from its strength. Yet the reasons are equally strong, that the inventor's exclusive enjoyment of his discoveries should not be perpetual, but should be permitted only for a limited period.

"All inventions, great and small, generally have their period of birth, growth, maturity, and perfection, if the latter term be allowable. And if one mind conceives and gives birth to the first idea, many assist in its development and expansion. Probably no piece of mechanism was ever made which was perfect in all its parts at its first creation. The steam engine is an interesting and beautiful illustration of the gradual progress of an invention, from its first conception in the mind of the inventor to its present wonderful state of perfection and efficiency. It first appeared in a rude form, unwieldy and dangerous to those who dared to operate it—a thing designed more for experiment than utility; and now, after passing through nearly two centuries of improvement, and taxing the highest intellectual energies of thousands of ingenious and skillful men, it appears to us with a perfection, in the nice and delicate adjustment of its machinery, which astonishes and delights us, and an efficiency and power of action which enable it to confer the greatest and most lasting benefits upon mankind.

"The history of this wonderful engine and instrument of civilization shows as clearly and conclusively that the claims of the in-

ventor to the fruits of his genius should not be perpetual, as it does that he should be permitted to enjoy them until he is adequately remunerated for his labor and expenditures; for if his right to his invention were perpetual and exclusive, no other person could improve it, because he could not use his improvement with the original invention, and therefore not at all. This would immeasurably retard, if not wholly prevent all improvement of original inventions, and would result in incalculable injury and mischief to society.

"Hence, while admitting the unquestionable justice of the claim of the inventor to the fruits of his genius for a period of time sufficient to enable him to remunerate himself adequately for his toils and expenses, it is absolutely necessary, for the progress of improvement and the welfare of society, that his exclusive right should then cease, and his invention become the common property of the public. Others will then have an opportunity to remedy the defects of, and to improve and perfect his original creations.

"And, in accordance with his view of the subject, the Constitution of the United States authorizes Congress to enact laws for the promotion of useful arts and the protection of the inventor in the enjoyment of the fruits of his genius and skill for a certain period, the duration of which is limited to fourteen years; at the end of which time, in consideration of such protection, his invention, and the secret of it, shall become the property of the public.

"I have been thus particular in setting forth the general principles of the patent law, because, as before remarked, a prejudice prevails to some extent in the community against the justice of the claims of the inventor to temporary protection in the enjoyment of the fruits of his labors. I am, however, happy to see that juster sentiments are growing more prevalent in relation to the rights of that valuable and meritorious class of citizens. During the past year courts of justice have displayed a more earnest desire to give protection to the inventor, as evinced by the liberal construction which they have given to the present imperfect patent law, whenever questions relating to patents have come before them for adjudication."

From the American Mining Journal.

#### Improvement in Treating Metallic Ores.

In the last number of the Journal and Gazette we gave an account of the recently patented method of smelting ores by electricity. We now give a specification of a patent granted a year or two since by the British Government to Mr. Frederick Bankhart, of Champion Park, Denmark Hill, in the County of Surrey, "for certain improvements in treating certain metallic ores, and refining the products therefrom." The invention relates to all ores containing copper, whether combined with sulphur or not; and consists in adjusting and mixing together the different ores which contain sulphur in other ores so adjusted and mixed, to successive roastings and lixiviations, whereby a solution of sulphate of copper is obtained, from which

the copper may be precipitated in a refined metallic state.

The method of carrying out this invention is as follows.—the copper ore is first reduced to powder, and the relative proportions of sulphur and copper which it contains are ascertained by analysis; then if the sulphur bears a less proportion to the copper than one to two, iron pyrites or copper pyrites, also pulverized, or added, in such quantities as will bring it to that proportion. If two or more descriptions of copper ores are to be treated, they must be mixed together in such proportions as will make the sulphur of the mixture bear to the copper at least the proportion of one to two; iron pyrites or copper pyrites being added, where necessary, to insure that proportion of sulphur. And there must always be a sufficient quantity of sulphur ores for the conversion of the copper into a soluble sulphate, and also to allow for the escape of part of the sulphur during the processes. The copper ore, prepared in this manner, is then submitted to such a degree of heat, in free contact with atmospheric air, as will oxidize the metals not already in a state of oxide, and convert the sulphur into sulphuric acid. For this purpose, a common reverberatory furnace is used, and the ore submitted to a dull red heat, in free contact with the air, until the mixture attains a state of seeming fluidity, and it is retained in that state until the evolution of sulphurous vapor nearly ceases; the whole of the mixture is not put into the furnace at once; but it is divided into several portions, and one portion being put into the furnace, another is added, when the first has attained a dull red heat, and so on until the whole has been introduced:—the mixture is frequently stirred during the process. The evolution of sulphurous vapor having ceased, or nearly so, the mixture is removed from the furnace to a vat or pit, and water (or a weak sulphate liquor from a previous lixiviation) applied at about the boiling temperature, and retained at that temperature for some time, by means of injected steam, to insure the solution of the sulphate of copper. When the sulphate of copper liquor is drawn off from the residual mixture, the latter is mixed with as much iron pyrites or copper pyrites as will supply the requisite proportion of sulphur; the whole is then subjected to a second roasting, and to a second lixiviation: this process of adjusting the proportion of sulphur in the mixture, and roasting and lixiviating, is repeated until the whole of the copper is obtained from the ore.

The next process is to precipitate the copper from its sulphate solution; after which it is to be fused, and run into moulds; it is then ready for sale as fine metallic copper. Various modes of precipitation may be adopted; but the patentee prefers to employ cast or wrought iron plates, keeping the solution at a temperature of from 120 to 150 degrees Fahr., and as nearly as may be of the same strength, by means of a circulating stream of fresh sulphate solution, which, entering at the top, and being conducted by a pipe downwards, tends, by its greater specific gravity, to displace the lighter solution; the latter

overflowing, is to be returned into the lixiviating vat, to be recharged with sulphate of copper, and this again precipitated, until the refuse liquid becomes a nearly saturated solution of sulphate of iron, when it is set aside to crystallize.

The patentee claims, as his invention, the mixing of the different ores of copper and iron pyrites in due proportion, according to the quantity of sulphur relatively with the copper which they respectively contain, and adjusting them in such manner as that ores which hold sulphur in excess may compensate others which are wholly or partially deficient in sulphur, and subjecting such mixture to a succession of roastings and lixiviations, (the residuum, after each roasting, having the proportion of copper to sulphur adjusted, as before,) and thereby obtaining a solution of sulphate of copper, whence the copper is obtained, by precipitation, in a refined metallic state.

#### Railway Breaks.

We find in the *Railway Record* for June 5th, the following account of *Crawford's Break* for railway carriages, and give it entire, with the conversation which took place at the Institution of Mechanical Engineers. Improvements in the break are as important as in the locomotive—as it is quite as important at certain times, to come to a stand, as it is at others, to go ahead.

At a recent meeting of the Institution of Mechanical Engineers, the following paper, on the improvement in railway carriage breaks, was read by Mr. CRAWFORD, C. E., (of Birmingham):—The railway carriage break in common use is open to several objections, but principally on account of its being very ineffective in all cases of emergency, as when a train gets off the rails, or an axle breaks, or some obstruction is in the way, with the train going at great speed, and but a short space to stop in; under which circumstances it is desirable that a great amount of retarding force should be applied, and as promptly as possible. Another great objection arises from the break entirely checking the revolution of the wheel, and causing the periphery to wear in flat places, particularly on lines of railway having steep gradients, and which may not unreasonably be suggested as one of the causes by which a train occasionally gets off the rail, and for which no very satisfactory reason is often assigned. To overcome these objections, I propose a mechanical arrangement for accumulating power, equal to a number of men, in proportion to the carriages on which breaks are to be applied, and with a means of connecting the breaks of the several carriages together, and of distributing the retarding force or friction on each, in proportion to its weight, and by which means the breaks may be as suddenly or gradually applied, as circumstances may require their intervention. To effect which, I submit two plans—either a cylinder with a piston, acted upon by compressed air, or the ordinary atmospheric pressure against a vacuum or a series of springs placed in a frame, in connection with the machinery for communicating motion to the breaks; giving a decided preference to

the latter arrangement, as the cheapest and least liable to get out of order. The connection may also be formed in two ways, either by a revolving rod running under the carriages, and fitted with a universal joint, and a socket at one end for the end of the rod on the adjoining carriage to fit into, or by means of fixed pulleys and chains placed under the floor of the carriage; but with either plan it is necessary that a spring should be attached to the lever of each break to regulate the amount of pressure to be applied, and to remedy any difference that may exist in the length of the connecting rods and friction blocks, or in any little irregularity that may take place in forming the connection between the carriages; and, if the spring be properly constructed, it is obvious that, however great may be the motive power by which the breaks are applied, no more than the requisite amount of pressure can possibly be thrown on the breaks of any particular carriage; but without the spring, unless the construction of all the parts and arrangements in connecting the several carriages together are exactly equal in every respect, (a circumstance by no means practicable,) the whole amount of pressure would probably be thrown upon one carriage, and not without great danger of fracturing some of its parts. In the adoption of any plan for suddenly applying a great amount of friction to stop the momentum of a train (as in the arrangement now open for discussion,) the application of which is only required at occasional and uncertain intervals, it is desirable that it should be constantly used to ensure its acting when fully required. I therefore propose to join the breaks of several carriages together, by either of the arrangements mentioned, and by placing the whole under the control of one guard. He would be able to use the breaks for the ordinary stopping of the train, by allowing the springs to recoil about half the length of the frame in which they are placed; or, should it be necessary, it would be in his power to throw on the whole effective force of the breaks by a simple motion of his hand. In the arrangement proposed, no alteration is made in the general plan of forcing the friction blocks against the wheels, by means of levers and rods attached to a horizontal bar placed underneath and at right angles to the length of the carriage; and, therefore, no considerable expense would be incurred in carrying out the arrangement—the addition of a spring attached to the break lever, with a series of springs for accumulating power, being all that would be required to perfect the arrangement. Should the springs accidentally become disarranged, the breaks may be applied by the hand, and those of each carriage may be separately used as the common break, whenever disconnected from the adjoining carriages. With regard to the construction of the springs, those made of a spiral form would be the best, if placed in a frame in which they could be regulated, by means of a nut and screw, to any desirable strength. As a proof of the durability of the spiral spring, I may mention that Mr. Salter, of

West Bromwich, has one that has been under compression for upwards of seven years without having lost any perceptible amount of power, although loaded with a sufficient weight to force the coils of wire perfectly close. In proof of the inefficiency of the present breaks, when most required, Mr. C. then proceeded to instance several accidents which had occurred in which the want of an improved plan was obvious. Mr. Crawford then explained, by the help of models, the action of his break, which is intended to be worked either by a cylinder or piston, or by a succession of springs, connected with the ordinary break.

The CHAIRMAN said that it was perfectly practicable to attach breaks to all the carriages in a train by the ordinary plan, and to connect them by chains and rods. Supposing the plan of Mr. Crawford and Mr. Chesshire's buffer were in use together, it would then require uniformity in the carriages. At present, on the narrow gauge, they had carriages belonging to different companies in one train, and no two companies' carriages were exactly alike.

Mr. CRAWFORD saw no difficulty in that, so long as the pulleys were put on the same side of the carriages.

The CHAIRMAN thought that it would require—first, all the companies to agree in adopting this invention; and, secondly, their departing from their present course of constructing their carriages, which would be a considerable expense.

Mr. CRAWFORD said it would not be necessary to have every carriage provided with a break; five or six would be enough in a train.

The CHAIRMAN remarked, that there were generally two carriages with breaks to each train at present.

Mr. CRAWFORD considered that the expense would not be more than 4*l.* or 5*l.* above the ordinary break. It could be applied without the slightest cutting up of the carriages.

Mr. FOTHERGILL said, that a steam break had been invented some years ago, which had not been carried out in consequence of the expense.

The CHAIRMAN thought that the result to be obtained would scarcely warrant the additional expense.

Mr. COWPER remarked, that the object of Mr. Crawford was to prevent accidents. The power of pulling up short was a gain, but he thought it might be effected by having an ordinary break to every carriage.

Mr. HENDERSON did not think the invention could be applied for the sum named, but thought if it were in itself desirable, the expense was not an objection. He questioned whether the stopping the wheels would stop the train.

The CHAIRMAN considered that a complicated machine like that, any part of which being out of order would stop the whole, was less to be depended on than a simple contrivance of less power.

Mr. WARD considered that a greater power of stopping the wheels would be an advantage, and that it was desirable that one man should have the power of effecting this.



Mr. CRAWFORD explained that he did not believe the stopping of all the wheels in a train would stop the train in less than 20 or 30 yards' distance. It would probably be sufficient for the purpose to check two-thirds of the wheels. In case of the machinery breaking (which he thought might be rendered almost impossible,) the ordinary breaks of the carriages might be used.

The SECRETARY—Providing you had a man in each carriage to do it.

After some further conversation, the CHAIRMAN expressed his conviction that they could not pronounce an opinion on the invention, and that probably Mr. Crawford would be satisfied with the examination it had undergone.

That gentleman assented, and the meeting then broke up.

#### Great Improvement in Iron Manufacture.

A gentleman of Newark, New Jersey, as we learn from the "Daily Advertiser" of that place, has recently patented a process of melting iron ore, and producing bloomed iron, which, in the judgment of those who have witnessed and examined the process, is an improvement of the greatest importance, not only to manufacturers, but to society at large. The patentee is Mr. Alexander Dickinson, a worthy gentleman of Newark, and his improvement consists in combining with a closed forge fire, a tight chamber with an opening at the top to fill in the charge of fuel and ore.

The value and importance of this simple invention, says the Advertiser, will be readily apprehended, when we say, as we do on the most reliable authority, that it saves half the coal and half the time required by the old method, and at the same time makes a better article—and equal to the best Russia or Swedes iron. It ordinarily takes from 300 to 350 bushels of coal to make a ton of blooms; and the old forge fire will make three tons of iron per week, by working day and night, without intermission.

The plan now introduced, it has been proved by satisfactory experiment, would produce double the amount, in the same time, of a far better article, and at a saving of half the cost in fuel—which, when we take into account the total amount of iron manufactured in our country, would make an immense saving, besides furnishing a better quality of iron. It requires but a moment's reflection to see that this improvement is therefore a matter of national consequence and general congratulation. The use of iron is becoming every day more universal. It now enters in a great part of all the economical enterprises of society, and this simple invention, by increasing the production and lessening the cost, can scarcely fail greatly to extend the use of it—and that without dependence upon a precarious tariff.

These startling statements are satisfactorily verified by the testimony of one of the oldest and most respected iron masters in the Union, Colonel Jackson, of Morris county, and his testimony is corroborated, if corroboration be necessary, by Seth Boyden—a machinist and inventor whose opinions on these subjects

have the weight and authority of demonstrations.

We find the above in Mining Journal of New York. We have before seen it noticed, but were inclined to believe that the claim was altogether too great to be correct, but shall be highly gratified to learn that it is literally correct. That important improvements will be made in this mighty field for American industry, skill, and capital, we have no doubt. It is only necessary to bring mind and capital to bear upon the iron business, in this country, to make us exporters, as we have heretofore been—and now are, importers of the article.

#### Railroad Items.

The several railroad companies between Albany and Buffalo are relaying the road with the heavy iron rail, as fast as iron can be procured. The Utica and Schenectady company have about three hundred men constantly employed, and will probably have the new rail all laid within twelve or fifteen months. This company is also grading an additional track by the side of the old one. The Syracuse and Utica Company have a large force employed, and will this season relay with a heavy rail the track from Rome to Utica—fifteen miles. The Auburn and Syracuse Company have commenced putting down the heavy rail, and will finish as much as possible this season. The Auburn and Rochester Company are preparing to lay the heaviest iron rail in the United States, and will probably not be behind the other roads in carrying it to a speedy completion. The Attica and Buffalo Company are preparing to lay down as much of the heavy iron as they can this season, and will complete the whole in another year. The Tonawanda Company intend to relay their track, between Batavia and Attica, with a heavy iron rail, during next summer, and to put down the heavy rail between Batavia and Rochester as soon afterwards as possible.

From present indications, the entire line from Albany to Buffalo, will be relaid with heavy iron by the fall of 1849.

The whole line of the railroad from Saratoga Springs to Whitehall, in Washington county, N. Y., at the head of Lake Champlain, is now under contract, and the work will probably be completed so as to accommodate the next year's travel, or at furthest, by the 1st of July, 1848. The road is to be of the most solid and approved construction. This will be a profitable road, without doubt. Besides the lines of packet boats on the Champlain Canal, there are now six or eight different stage coaches, in constant employment, to convey passengers to and from Saratoga, and the Champlain steamboats. A good railroad will attract still more travel to the North by way of Whitehall and the Lake. When the present awful railroad from Troy to Saratoga is relaid with a good solid T rail, it will become a favorite route to Montreal, Ogdensburg, etc. A road is contemplated, too, from Whitehall to Rutland, or some point on the route of the Rutland road—a distance of some 20 miles—which will make a route from Whitehall to Boston that way, very little, if any longer, than by the way of Troy and Albany.

The entire track of the New Haven, Hartford, and Springfield railroad, with the exception of about four miles between Hartford and Berlin, has been relaid with heavy T rail. A difference of thirty minutes is made in the running time between Hartford and New Haven, and about one hour in the running time through. The line between New York and Boston, via New Haven, goes through in about twelve hours, and is a very delightful route, as it passes through some of the pleasantest villages of New England.

We understand that the trustees of the town of Portsmouth, Virginia, have purchased the Portsmouth and Roanoke railroad from the board of public works of that State, under the act passed at the last session of the Legislature, for the sum of \$50,000, upon a credit of six years, and that they have sold the road to Messrs. Henshaw & Co., of Boston.

The new company will immediately lay down T rails from Portsmouth to Welden, and will also extend the road thirteen miles further in order to connect with the Raleigh and Gaston railroad.

The receipts of the Long Island Railroad Company are daily increasing, and the expenses decreasing. A very important reduction in the expenditures of the company is in contemplation.

The Morris and Essex Railroad Company have declared a semi-annual dividend of 3½ per cent.

A new line for Boston is about to be opened, consisting of the Worcester and the Rhode Island. These boats are to run to Providence, in opposition to the Bay State at \$2 through. The result of this will probably be a break down of the fare on all the routes, and another season of unprofitable business on the Sound.

Notice is given that the interest due on the Harrisburg railroad bonds, on the 1st July, will be paid at the Girard Bank.

**Railroad Commissioners**—The Governor has, we understand, appointed John Wilkinson, of Syracuse, Henry B. Gibson, of Canandaigua, and Timothy Childs, of Rochester, Commissioners to settle difficulties between the Troy and Schenectady and the Utica and Schenectady Railroad Companies, as authorized by a law passed May 7, 1847.

**The Telegraph Lines**—The Albany Evening Journal refers to the two new Telegraph inventions which are about to be put in operation at the north, and the fact that merchants of New York have subscribed the stock for new lines of telegraph from New York to Boston, and from New York to Philadelphia. It says House's patent will work—but it is more complicated than Morse's. Pease's invention, however, it considers a gem—simplicity itself. A child, it adds, can catch the entire philosophy of it at a glance. If it works well, it will prove a successful competitor for the golden glories of the system. The Journal does not complain of the courtesy nor the accuracy of the present lines, but it thinks the public convenience may be promoted by other lines; and winds up with the following very apposite remark in which

all editors will unite: "Competition is the life of business; and while it may not make lightning travel any faster, it may make it perform its astonishing functions at more moderate rates."

**Telegraph under Water.**—The Electric Telegraph from Portsmouth, England, to the Isle of Wight, has been found to succeed admirably, on a trial, with even only one wire laid down under water. We heard that the telegraph on the Philadelphia and Baltimore line passes under the waters of Gunpowder river, and operates also successfully.

**ATLANTIC AND ST. LAWRENCE RAILROAD.**—Notice to Contractors.—Proposals in writing will be received at the office of the Atlantic and St. Lawrence Railroad Company, in the city of Portland, until Tuesday, the tenth day of August next, inclusive, at sunset, for the grading, masonry, and bridging of that portion of their road extending from the termination of the second division near the hotel road in Danville, to a place in the vicinity of Norway and Paris cape, a distance of about 20 miles.

Maps, profiles, and specifications will be ready for examination on and after the second day of August next, at the Engineer's office in Portland, where all necessary information will be given.

The company will require, as one of the stipulations of the contract, that the heavier work on any section, shall be first attended to, so that the heavier and lighter work may be completed at nearly the same time.

Persons unknown to the officers of the company must accompany their bids with satisfactory evidence of their ability to execute the work. In all cases good and sufficient bonds with two or more sureties will be required for the faithful performance and fulfillment of the contract.

WM. P. PREBLE, President.

Portland, June 30, 1847.

3:28

**NOTICE TO CONTRACTORS.—SEALED** Proposals will be received until Wednesday, July 15th, in the Borough of Harrisburg, and until Wednesday, July 23d, in the city of Pittsburg, at 10 o'clock A.M., at the Office of the Engineers, for the Grading and Masonry upon fifteen miles of the Pennsylvania Railroad, extending west from Harrisburg, and fifteen miles of said Railroad, extending east from Pittsburg. The grading will include very heavy work, and the amount of Masonry, including the Piers of Abutments of the Bridges across the Susquehanna, three-quarters of a mile in length, will be unusually large. Plans and specifications of the work can be seen at the Engineer's office in each place, for ten days previous to the time appointed for receiving the bids. Any further information can be had upon application to the Chief or Associate Engineers.

S. V. MERRICK, President.

**MICHIGAN CENTRAL RAILROAD.—NOTICE TO CONTRACTORS.**—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of Col. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors.

J. W. BROOKS, Supt.

Michigan Central Railroad Office,  
6:26 Detroit, June 17, 1847.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 4 inch Flat Punched Rails, 20 ft. long.  
25 " 2½ x 4 " Flange Iron Rails.  
75 " 1 x 4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

**PATENT HAMMERED RAILROAD, SHIP** and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, ja45 Paterson, N. J., or 60 Wall street, N. York.

## FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

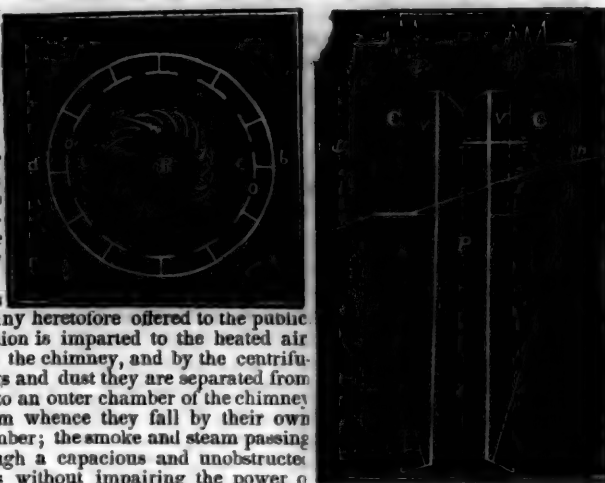
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

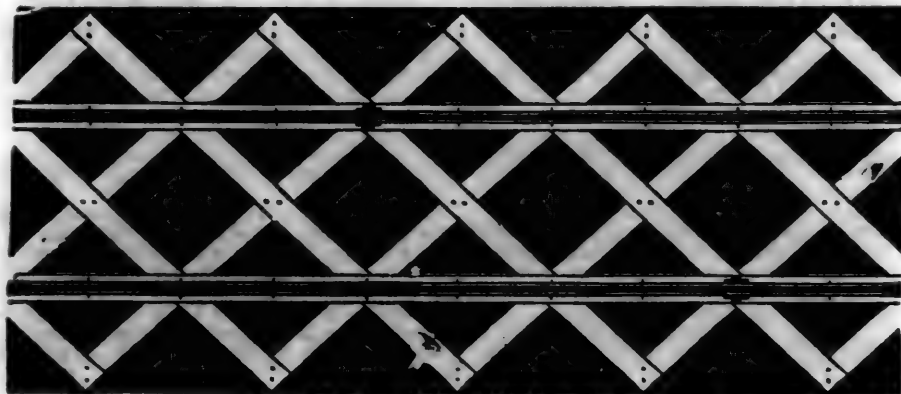


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 3½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,324 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

331f

## LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\*

Maryland.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

Vine St. Wharf, Philadelphia.

12f

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

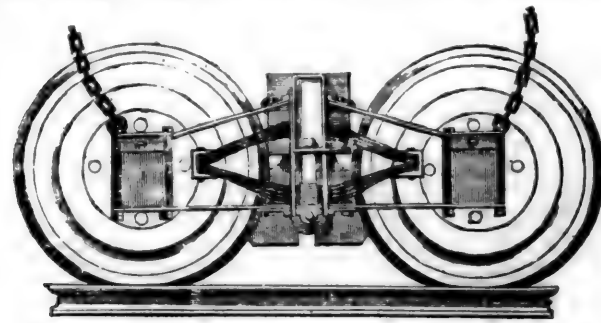
For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

321y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.		CHAINS.		STRENGTH	
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16	20	
13	3½	8 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	12 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-2	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## RAILROAD SCALES.—THE ATTEN-

tion of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,  
59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,  
Jan. 2. [1tf] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845.

[Signed,] JOHN LEACH,

Supt. Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
45 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10tf

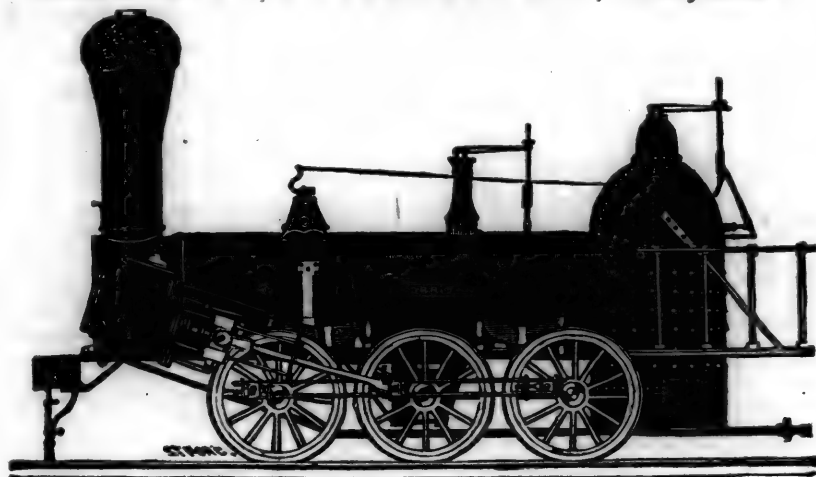
## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }

J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }

J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }

William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark N. J.

Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly.

35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand

A. & G. RALSTON

Mar. 20th

4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**O RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

## WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture! and for sale by

MORRIS TASKER & MORRIS,  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

## PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL &amp; CO.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1y10 New York.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address

SAM'L KIMBER & CO.,  
41f Willow Street Wharf,  
Philadelphia, Pa.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
261f Philadelphia.  
ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
1y Albany Iron and Nail Works,

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.  
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 281f

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**CONCORD RAILROAD.—PASSENGER**  
Trains in connection with the Lowell & Nashua Railroads, run daily between

Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

261f N. G. UPHAM, Sup't.

**NEW YORK AND ERIE RAILROAD LINE**  
SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M. Fare between New York and Otisville, \$1 50; way-fare in proportion.

For MILK—Leave Otisville at 5½ o'clock, morning and evening.  
For FREIGHT—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½ A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

241f H. C. SEYMOUR, Sup't.

**WESTERN RAILROAD.—ON AND AFTER** Monday, April 5, 1847, the passenger trains will leave daily. Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.  
Albany at 7 1-4 a. m. and 5 p. m. for Boston.  
Springfield at 8 1-2 a. m. and 1 p. m. for Albany.  
Springfield at 8 1-3 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m. For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.  
C. A. SEAD, Agent, 27 State street, Boston.

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m. All baggage at the risk of the owners thereof.

251f W. RAYMOND LEE, Sup't.

**NEW YORK & HARLEM RAILROAD CO.**—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—Freight train at 1 p.m.

Returning to New York, will leave—Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 30 and 6 15 p.m. Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m. Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m. Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m. Mechanicsville, 7 48 a.m. and 4. 48 p.m. Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m. Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a.m., 4 p.m. Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m. White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st. A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1. to Mechanicsville 87½c., to Newcastle 75c., to Pleasantville 62½c., to White Plains 50c. 251f

**LONG ISLAND RAILROAD COMPANY.** Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale. Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4½ p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

251f DAVID S. IVES, Sup't.

**PATERSON RAILROAD**  
Summer Arrangement.

Commencing April 20th, 1847, the cars will leave Paterson at New York at

8 o'clock a.m. 9½ o'clock a.m.  
11½ o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5½ o'clock p.m.

On Sunday.

8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.

251f Office 75 Courtlandt St.



**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....	9 a.m. and 3½ p.m.
Arrives at.....	9 a.m. and 6½ p.m.
Leaves York at.....	5 a.m. and 3 p.m.
Arrives at.....	12½ p.m. and 8 p.m.
Leaves York for Columbia at.....	1½ p.m. and 8 a.m.
Leaves Columbia for York at.....	8 a.m. and 2 p.m.

## FARE.

Fare to York.....	\$1 50
" Wrightsville.....	2 00
" Columbia.....	2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg..... \$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at..... 5½ p.m.  
Returning, leaves Owning's Mills at..... 7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**BOSTON AND MAINE RAILROAD.**  
Upper Route, to Portland and the East.**SUMMER ARRANGEMENT,**  
April 1, 1847.**PORTLAND TRAINS.**

Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

**GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6:20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**

Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

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CHAS. MINOT, Sup't.

**NORWICH AND WORCESTER RAILROAD.**  
Road. Summer Arrangement. Change of

Hours. Commencing on Wednesday, April 31, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat.—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. J. W. STOWELL, Sup't

**PHILADELPHIA AND READING RAILROAD.**  
Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A.M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3 50 and \$3 00		
" " Reading, 58	2 25 and 1 90		
" " Pottsville, 34	1 40 and 1 20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.****Summer Arrangement.**

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

**CONNECTION BETWEEN THE BOSTON AND Lowell and the Boston and Maine Railroads.**  
On and after April 1st, 1847, passenger trains

between these two roads, will run as follows, viz:  
Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.  
WALDO HIGGINSON, Agent.

**NEW YORK AND PHILADELPHIA RAILROAD line—direct.**  
Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.)

Leaving New York daily from the foot of Liberty street.

Morning line..... 9 o'clock a.m.

Mail pilot line..... 4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars..... \$4 00

Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

**LITTLE MIAMI RAILROAD.—OPEN**  
TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:  
Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.....	\$1 00
" " " Xenia.....	1 50
" " " Springfield.....	2 00
" " " Columbus.....	4 00
" " " Sandusky city.....	8 00

The Passenger trains run in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

W. H. CLEMENT, Sup't.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. al3yl

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture; per cubic foot.....	0 30	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 30	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion.)	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		
Goods consigned to the subscriber will be forwarded free of Commissions.		
Freight may be paid at Savannah, Atlanta or Oothcaloga.		
F. WINTER, Forwarding Agent, C. R. R.		1y34
Savannah, Aug. 15th, 1846.		

**CENTRAL RAILROAD—FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$150 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, Agent.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.** AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga and Dalton.	Between Charleston, Oothcaloga and Dalton.
		20 miles.	386 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 36
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack.....		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846. 44 1y

**GREAT SOUTHERN MAIL LINE! VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston.....\$21 00

" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculum, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

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THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

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ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column " ".....	3 00
One square " ".....	1 00
Professional notices per annum.....	5 00



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 30.]

SATURDAY, JULY 24, 1847.

[WHOLE No. 579, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, July 24, 1847.

### Elevated Railway and Promenade

*Above the Omnibuses, in Broadway, New York.*

By the invitation of John Randel, Jr. C. E., (the gentleman who laid out the city of New York into streets and avenues in 1808 to 1820) we have had the pleasure of examining a model made by him in accordance with a resolution of the corporation of that city, who unanimously approved of the plan then proposed, representing several different plans for an elevated railway and promenade, through and above Broadway, from the Battery to Union Place. The cars are to be propelled by stationary power, with an endless rope, and pass above the level of the omnibuses and highest loads, and will not obstruct the present ordinary travel of the street or sidewalks.—The cars do not stop to take in or let out passengers—this is done by means of a tender, running upon another track, along side of the main track. Passengers may walk or be elevated from the pavement up to the promenade and railway.

This model is made entirely of metal—it is more than 31 feet in length, and has cost over \$3000, besides nearly two years of Mr. Randel's time in planning and superintending the work.

We intend, in our next number, to give a detailed description of this very elegant and important improvement for Broadway—and now call public attention to the subject, because a heavy expense is being incurred by the citizens for *awning posts* in Broadway; and any one of these plans of Mr. Randel, if adopted, which we think it will be, will supply that street with elegant *iron columns*, with capitals and fluted, and placed at regular distances apart, along the curb stones, and which may be used for *gas, awning posts, hydrants*, etc., as well as to support

this elevated railway and promenade, the whole length of Broadway, making together two rows of columns each about three miles in length.

Mr. Randel intends to take this model to N. York next week—and after it has remained there a short time, it is to be taken to London, where a patent has been secured.

### From New York to Pittsburg by Railroad.

We have a letter, says the editor of the Pittsburg Gazette, from an intelligent gentleman in New York city, and one who has the interest of the New York and Erie railroad much at heart, which says:

"There is no doubt we shall connect the Erie railroad with Pittsburg at an early day, though just now our entire energies are absorbed in completing the road to its New York terminus."

We have, in nearly all the letters we have written to New York city for three months past, pressed the importance of a communication like this upon the attention of our friends. The plan is entirely a practical one, and if the people on the line between New York and the Ohio river will heartily unite to accomplish the enterprise, it can be effected. If the Allegheny river is not to be improved by a Slack-water navigation, a railroad communication is doubly desirable. We do not expect to see either work accomplished at once, but we direct public attention to it as an event certainly to be realized unless Rip Van Winkle has seized fast hold on the most intelligent perceptions of the people. Providence has done so much for us in this section of country, that we find half the work done at our hands whenever any great public improvement is seriously commenced.

### The Iron Trade.

The Gloucestershire Chronicle says this trade is still without change in Wales, though reports begin to be heard that contracts for railway iron could be taken at lower rates, if for execution in the latter part of the present year. In the Clyde pig iron was considerably depressed in value in the course of the last week, but the effect of any orders received by the Caledonia for the American market has not yet been fully ascertained.

Glasgow, June 25.—The market has just now improved, and we may quote 64s. 6d. for No. 3, 65s. 6d. for 3-5 No. 1, and 2-5 No. 3, and 67s. for No. 1 cash, with little iron offering at these rates.

Birmingham June 26.—From what has transpired in Birmingham and Wolverhampton it is not probable that there will be any change in the price of

iron at the approaching iron masters' quarter days. The demand is still good.

### The Railroad West.

We understand that a meeting was recently held in Beaver, to take preliminary steps towards a railroad west. It was called in harmony with a meeting lately held in Salem, where \$1000 was subscribed towards the survey of the best route west from Pittsburg. Several gentlemen are in Pittsburg from Salem, in behalf of the enterprise, and we hope that, through the Board of Trade, or otherwise, it may receive an impetus from the citizens of that place.

### Railroad Cars.

The question has been asked us—how many cars—passenger and freight—are there in use on the American railroads? Not being able to answer it, we ask of each company a report on the subject.

### Tunnelling on Railroads and Canals.

We have received the following communication from an esteemed friend who has, it will be perceived, investigated the subject with some care; and we hope he will follow it up with his usual industry and perseverance, as the subject will then be better understood.

### For the American Railroad Journal.

The agitation attending the question of the proper route to be selected for the Pennsylvania railway has led to much discussion respecting *Tunnelling*. There appears to be a prejudice in the public mind in this country against tunnels. The reverse is the case in England. Engineers in Great Britain believe that the first cost of tunnelling bears no proportion to the ultimate advantages gained by shortening distance, lowering elevations and gradients, keeping nearer to a direct line, and avoiding curves—lessening deep cutting and filling, and, above all, establishing a permanent, everlasting roadway. I am aware that the accumulation of capital in England changes the question greatly; yet even here, when an object commensurate with the expense is to be obtained, every adequate outlay should be made.

The public in this country are not aware of the stupendous works of this nature which are proposed, and have been constructed in Europe. I give you a list below of a few in this country and Europe; hoping that it may induce some one who has more extensive means of research than I, to notice the subject, and furnish us with an account of all the important works of this kind.





NAMES OF ROADS.	Dividends.	Excess of expen. over receipts.	Excess of receipts over expen.	No. of pass- engers.	No. of freight trains.	No. of pass- enger trains.	Total miles run.	Average no. of men employed.	No. of loco- motives.	Average no. of passenger trains per month.	Average no. of freight trains per month.
Mohawk and Hudson.....	none.	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00
Utica and Schenectady.....	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00	80,000 00
Syracuse and Utica.....	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00	32,000 00
Auburn and Syracuse.....	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00	112,000 00
Auburn and Rochester.....	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00	56,300 00
Tonawanda.....	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00	30,496 00
Albion and Buffalo.....	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33	13,915 33
Buffalo and Niagara Falls.....	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00	18,000 00
Saratoga and Schenectady.....	none.	none.	none.	none.	none.	none.	none.	none.	none.	none.	none.
Schenectady and Troy.....	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00	9,600 00
Reeseville and Saratoga.....	none.	none.	none.	none.	none.	none.	none.	none.	none.	none.	none.
Long Island.....	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99	55,776 99
Cayuga and Seneca.....	76,412	76,412	76,412	76,412	76,412	76,412	76,412	76,412	76,412	76,412	76,412
Albany and W. St. Albans.....	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96	15,417 96
Hudson and Berkshire.....	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36	6,688 36
Troy and Greenhush.....	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60	91,318 60
New York and Harlem.....	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43	8,065 43

† No returns from this, excepting that the total cost of construction, repairs, and running expenses was \$14,557 56, and the receipts from all sources \$17,158 29.

\* The columns, the headings of which are in *Italics*, are calculations made from the data furnished in the reports. The \* is put where there were no returns made.

#### Improved Tubing—Electric Telegraph.

The London Railway Record says "Our attention has been called to some important improvements recently made in the patent welded iron tubing, by Mr. Cornelius Whitehouse, of the Globe tube works, Wednesbury, the original patentee. These improvements, we are assured by a friend, who has had much practical experience, placed Mr. Whitehouse's manufacture at the head of all inventions of a like character. For the electric telegraph this tubing is peculiarly applicable."

#### Railway Traffic in England.

From the official returns it appears that the amount of traffic for the week ending June 19th, on upwards of 2,730 miles of railway, was £178,004, thus accounted for: £100,181 for the conveyance of passengers only, £40,814 for the carriage of goods, and a remainder of £37,009 for passengers and goods together, not respectively apportioned; being an increase of £5,339 over the corresponding week of last year, when the mileage was about 2,292.

The amount of traffic for the week ending June 26th, on upwards of 2,730 miles of railway, was £162,922, thus accounted for: £89,339 for the conveyance of passengers only, £41,868 for the carriage of goods, and a remainder of £31,815 for passengers and goods together, not respectively apportioned; being an increase of £13,470 over the corresponding week of last year, when the mileage was about 2,292.

The amount of traffic for the week ending July 3d, on upwards of 2,730 miles of railway, was £173,506, thus accounted for: £98,252 for the conveyance of passengers only, £39,636 for the carriage of goods, and a remainder of £35,618 for passengers and goods together, not respectively apportioned; being an increase of £19,691 over the corresponding week of last year, when the mileage was about 2,292.

#### Georgia Railroad and Banking Company.

We give the Annual Report of the President and Engineer of this Company nearly entire—and thus keep up the series.

#### PRESIDENT'S REPORT.

#### To the Stockholders of the Georgia Railroad and Banking Company.

The annexed statement of the cashier, compared with last annual statement, will exhibit the operations of the bank during the past year. As was anticipated in the last annual report, these operations have been considerably enlarged, though the full advantages of this branch of the institution can never be realized while it is charged with so heavy an interest on the debt contracted for the construction of the road.

It will be seen by the engineer's report that the net profits of the past year, ending March 31st, were.....\$252,033 10

For the same time the interest paid by the bank was.....\$54,761 56  
Reduced by interest, discount, etc, received.....25,971 86

Balance of interest.....29,389 70  
Add bank salaries, taxes and incidentals.....10,218 81

39,708 51

Leaving nett.....\$212,324 59

Or upwards of 9 per cent. on the capital stock, after paying interest on debt, and all expenses properly chargeable to both bank and road. It has been truly observed by the engineer in his report, that the past has been a year of great prosperity; but as the tendency is to an increase of net profits, from causes noticed in previous reports, and as our connections will soon be considerably extended, the directors see no reason to anticipate any diminution of the net profits of the company hereafter.

In connection with this result of the last year's business, the directors feel it a duty to remind the stockholders of the real value and prospective profits of their stock. It will be perceived that if that part of the road debt

bearing interest were represented by capital stock, the whole investment would yield an interest that would insure to the stock a heavy premium in the market.

The engineer's report exhibits fully the present condition of the road, and its operations for the past year. The outlay for cars and engines has been somewhat larger than was anticipated, owing to an increase of business and other causes mentioned in his report. As these causes are mostly flattering to the business and prospects of the company, they afford no discouragement to the stockholders; and with the trifling exceptions mentioned by the engineer, the outlay hereafter may be confined to the regular and necessary expenses of working the road, and such gradual appropriations as may be deemed expedient to replace the flat bar with heavy iron to Union Point. This latter outlay, though very important, is of no pressing emergency, except for the first 20 miles. The plate rail is a good one, and it is believed by the directors, that few roads in the Union laid with a plate rail are in better condition, or kept in a more perfect state of adjustment than our road from Augusta to Union Point. This pattern of rail is however not well suited to our heavy business, and as the same trains run over the entire road, much of the advantage of a heavy rail above Union Point is lost by the use of the plate rail below it.

These considerations might well induce the directors, on principles of true economy, to recommend at once the substitution of a heavy rail to Union Point, if the finances of the company were in a condition to warrant it. As they are not, however, the orders made, or at present contemplated by the engineer, have been very properly confined to the 20 miles nearest Augusta. To this extent the purchase of the heavy rail during the present year is especially important. It is the oldest part of the road—is more used than any other, and while the heaviest tonnage necessarily passes over it, it exhibits some of the largest and heaviest grades upon the line.—To these inducements may be superadded, the very favorable opportunity of disposing of the plate rails to be displaced.

The growing importance of the trade and travel from the valley of the Coosa and North Alabama, induced the board to authorize a subscription, to about one-fourth the stock of the road, chartered from Kingston to Rome, which is estimated at a cost of not exceeding one hundred thousand dollars, including necessary outfit. The small departure from the acknowledged policy of the company, was thought by the directors to be well justified by the importance of the object, compared with the small outlay which was found to be necessary to accomplish it.

The directors are pleased to notice the confidence with which the engineer anticipates a continuation of the line from Cross Plains to Chattanooga, and from that point to Nashville. It is with equal pleasure they have understood that the Hiwassee company has been revived, with a strong prospect of the completion of the road at an early day. The great resources of the country to be devel-

oped by these important roads connecting with our Georgia improvements, have been often noticed and never overrated. When completed, it would be difficult to estimate the business that must crowd upon us from the populous and fertile regions of East Tennessee, and the great valley of the west.

In pursuance of the policy indicated by the stockholders at the last convention, the directors have since that time declared from the net profits, two dividends of two dollars each, amounting in the aggregate to \$91,567 99. About \$31,000 of the principal debt bearing interest has also been paid. The heavy outlay made by the engineer for outfit and the purchase of new iron, has weakened the ability of the company to pay as much towards its principal debt as was desirable. Something more, however, could have been paid with safety, if any opportunity had been afforded. This opportunity will be afforded on the 1st of July next, when a portion of the funded debt of the company will become due, and may be further reduced.

All of which is respectfully submitted,  
JOHN P. KING, *President.*  
Augusta, May 11, 1847.

We give annexed the Engineers Report of the proceedings of the past year. It makes a good exhibit of the affairs of this well managed company.

#### ENGINEER'S REPORT.

*Engineer Department G. R. R. & B. Co. }*  
Augusta, Ga., April 19, 1847. *}*

SIR: Since my last annual report, there has been expended for the road as follows:

For real estate, right of way, division houses, depots, finishing bridges, etc.....	\$22,987 45
For additions to our stock of locomotives 35,391 93	
"      "      "      cars.....	29,550 00
For new iron rails and fastenings not laid down.....	6,194 13
	<b>\$94,123 51</b>

All balances of consequence due on account of the extension of the road beyond Madison, have been paid. It being the true policy of the company to substitute for the plate rail on the road beyond Union Point, a heavy rail, as fast as a favorable disposition can be made of the old material; 700 tons of iron of the  $\Pi$  form, weighing 46 lbs. per yd. have been ordered to relay that part of the road between Augusta and Belair.

In expectation of a large increase in our business, from the extension of the State railroad to Cross Plains (Dalton) and the completion of the branch to Rome, I have ordered 20 additional close freight cars to be built in time for the ensuing crop. These will cost about \$12,000. The present stock of the company consists of 149 close 8-wheel freight and stock cars, 65 8-wheel platform cars, 8 8-wheel passenger cars, 3 8-wheel baggage and mail cars, and 5 4-wheel passenger cars.

The addition of another 8-wheel passenger engine, which will cost, delivered, \$7,500 will make our motive power equal to the present wants of the company. In consequence of a deficiency in this branch of the service during the early part of the past business season, together with the necessity we

were under of loaning to the State the use of some of our engines—owing to the delay in the arrival of hers, and the unexpected increase in the grain transportation from the Cherokee region—the repairs of the locomotives are somewhat greater than usual; the causes referred to rendering it necessary to keep a larger portion of our engines on the road at one time than usual, which was necessarily followed by a resort to night work for their repair—always expensive and unsatisfactory in its results.

For the purpose of accommodating our increased number of locomotives, a new house calculated to contain 16 engines has been commenced, and will be finished during the fall—the car factory having already been removed to the back part of the lot, to make room for its erection.

Horse power upon the Athens branch has been discontinued, and a small locomotive weighing 336 tons substituted instead, which performs the duty required satisfactorily, and without material injury to the road. The following summary statement will exhibit the result of the operations for the year ending March 31st, 1847.

BUSINESS.	
Passengers.....	\$136,559 69
Freight.....	232,891 24
U. S. Mails, etc.....	40,484 53
	<b>\$409,935 46</b>
EXPENSES.	
Conducting transportation.....	\$36,933 75
Motive power.....	45,066 08
Maintenance of way.....	57,508 29
"      cars.....	18,394 24
	<b>157,902 36</b>
Leaving net profits of the road.....	<b>\$252,033 10</b>

The receipts of the road exceed those of last year \$94,593 87, and the expenses \$21,698 62. It will be recollected, however, that 40 miles of the road were not brought into use until nearly six months of the previous year had elapsed. The increase in the receipts is, from passengers \$42,498 61; up freight, \$10,244 25; down freight, \$39,401, and mails, \$2,450 01. The whole number of bales of cotton transported over the road was 94,867, showing an increase of 30,076 bales. The average number of passengers per day carried both ways, is 92, against 66 last year. Of the first number there were 12 entered through between Montgomery and Charleston, against 10 the previous year.

The whole number of passengers transported over the road is 33,354. The distance travelled by them is equal to 2,853,637 passengers carried one mile; which will make the cost of carrying each, 2 05 cents per mile. The freight is equal to 4,966,767 tons carried one mile, giving the cost of carrying each ton  $1\frac{1}{2}$  cents per mile.

Comparing the expense with the distance run by all the trains, we have the following results for four successive years.

	1844.	1845.	1846.	1847.
Conducting transportation per mile run.....	17-50	16-50	13-9	14-25
Motive power, do.....	16-75	14-75	16-1	17-40
Maintenance of cars.....	6-75	8-25	6-6	7-10
"      way.....	25-00	23-00	22-7	22-20
Totals.....cents,	66-00	62-5	60-3	60-95

The average cost of the repairs of the road is a trifle less than 270 dollars per mile, and, contrary to our expectations, less than it was last year, which fully exhibits the judgment and fidelity that have characterized the administration of that department.

The transportation department has been particularly fortunate in the regularity and freedom from serious accidents, that have attended the business operations of the year, reflecting the highest credit upon its courteous and efficient superintendent.

In reviewing the operations of the road, for the past year, we think that the stockholders have every reason to congratulate themselves with the result. We have done a fair business, at extremely low rates. On produce, for the whole length of our road—171 miles—our charges were but from 16 to 25 cents per 100 lbs. Yet we have been able to clear, after paying all expenses, including interest, over 9 per cent. upon the capital stock. It is true that this has been a year of general prosperity; but it will at the same time be recollected, that we penetrate through the W. & A. railroad, a country whose resources are scarcely at all developed, and that road has not yet reached a point whence we could expect it to draw much new transportation. Thus far, however, it has more than realized our expectations, and fully justified the enlightened policy of this company, in extending pecuniary facilities towards its construction.

The future success of that project (W. & A. R. R.) may now be considered as fully demonstrated. If continued no farther than Dalton (Cross Plains) it will be a valuable improvement: but when carried to the Tennessee river, according to the original design its revenues, after paying expenses, will greatly diminish, if not entirely relieve the State from taxation on account of the debt incurred for its construction. The sum necessary to finish the remainder of this road, and stock it with the necessary locomotives, will not, under the economical administration of its present chief engineer, exceed \$375,000.—The interest upon this sum at 6 per cent. is but \$22,500, while the revenues the first year, I hesitate not to say, will be augmented fully \$75,000, and will continually increase, as the mineral and agricultural resources of the vast region that will then become tributary to the road, are developed—independently of the flood of business that will follow the completion of the Nashville road, the construction of which is no longer problematical.

From the southwest, we find our travel gradually but constantly increasing. The extension of the Montgomery road will still further augment this source of our revenue, which would be greatly increased by the union of the roads. In fact, on all sides we can see nothing but cheering evidences of success, with but little to mar the prosperity before us.

All of which is respectfully submitted by your obedient servant,

JOHN EDGAR THOMSON,  
*Chief Engineer.*

To Hon. JOHN P. KING,  
Pres't Geo. R. R. & B. Co.



**-836,933 75**

**-\$45,066 08**

**-\$57,508 29**

**-\$18,394 24**

4151,500 00

*Statement of the aggregate amount of business done on the Geo. Railroad, from April 1, 1846, to April 1, 1847, including freight on the Western and Atlantic Railroad.*

† This is evidently an error. [Ed. R. R. J.]

	Ratio of ex- penses to gross rechs.	Cost per mile run by the year.	Total receipts being	Total expenses being
Georgia railroad.....	.38	\$0.61	\$400,935.46	\$157,909.36
South Carolina railroad.....	.51	0.87	589,081.52	302,369.71
Boston and Lowell railroad,	.65	1.05	384,102.29	512,283.63
" " " " " "	.65	0.65	349,375.56	179,734.83
Maine " " " " " "	.47	0.85	360,375.03	169,670.44
Providence " " " " " "	.47	0.96	584,712.46	283,846.11
Worcester " " " " " "	.41	0.58	296,645.36	117,447.31
Fitchburg railroad.....	.51	0.58	584,712.46	283,846.11
Western " " " " " "	.47	0.72	878,417.89	418,679.84
Balt. & O. " " " " " "	.48	0.64	895,315.23	425,100.22
Central railroad, (Geo.).....	.56	0.67	303,439.96	170,236.90

The above comparisons are made with the most profitable railroads in the country.

F. C. ARRA.

expenses for the year, according to the chief engineer's report..... \$157,902 36

† This is evidently an error. [Ed. R. R. J.]

+ Interest paid during the year on the debts of the company .....	\$54,699 06
Interest received by the bank during the year .....	13,109 61
Balance to the debit of interest account, April 5, 1847 .....	\$41,596 46
: This item of .....	\$177,068 45
embraces expenditures for road construction, engines, cars, etc., charged by the bank, temporarily, to "road expenses," but which belong to, and are placed at the end of the year, upon proper vouchers from the chief- engineer's office, to the account of "the road and its outfit," .....	90,056 09
Leaving the actual amount of "road expenses" for the year, according to the chief engineer's report .....	\$157,902 35

LIABILITIES.	
Capital stock.....	\$2,289,199 92
Collections on personal accounts.....	\$27,509 79
Collections on account of Newton co. stockholders.....	9,484 68
Bill payable, and permanent deposit.....	14,690 00
	\$41,684 47
Income from railroad & mail.....	
•Transportation.....	391,039 53
Discount account.....	10,283 56
Premium account.....	338 03
Rent account.....	1,485 18
Profit and loss.....	309,684 90
	\$712,831 19
Deposites on interest... ..	112,004 88
Company's bonds.....	695,500 00
Dividends unpaid.....	11,053 49
	819,558 37
Due to corporations and agents.....	13,422 99
Due to chief engineer of the State of Georgia..	78 23
Due to depositors.....	61,002 59
	74,503 80
Bank notes and railroad receipts in circulation.....	376,446 25
	\$4,317,224 00

\* This item only embraces the cash paid into bank on the collections of the year; the whole "income from railroad and mail transportation," during that period, according to the report and tabular statement of the chief engineer, is..... \$409,935 46

#### Susquehanna Railroad.

##### Extension from York to Harrisburg.

This is a subject to which we have often referred and to which we have attached much importance—we therefore republish the following report of a committee appointed to investigate, and report upon, the subject. It is quite true that energetic movements were made for the opening of this road, and we are therefore pleased to learn that the Baltimore and Susquehanna railroad company have taken the measure in hand. When the work is once commenced, it will not be long before it is extended northward to the New York line—thus opening a communication from Baltimore to the interior of New York.

The undersigned, a committee appointed by the Board of Directors of the Baltimore and Susquehanna railroad company upon the subject of a railroad connection between York and Harrisburg, by means of the charter granted by the Legislature of Pennsylvania to the York and Cumberland railroad company, beg leave to submit to the board the following

#### REPORT.

The committee left Baltimore on the second day of June, accompanied by Isaac R. Trimble, Esq., the former engineer of the company, who had been invited to accompany them. From that day to the fifth, they were engaged in visiting York, Harrisburg, and Middletown, for the purpose of making a reconnaissance of the intermediate country, and of obtaining information as to the feasibility and probable cost of the proposed road. They found the best feelings upon the subject existing on the part of the citizens of the various towns they visited, and an earnest desire to lend their efforts towards the immediate prosecution of the undertaking. Assur-

ances were given by many that stock would be liberally subscribed for. Nothing like a feeling of state jealousy seemed to exist, but all appeared anxious for the proposed railroad connection with Baltimore—very properly considering that it would be productive of equal advantages to Pennsylvania and Maryland. It would more fully develop the agricultural and mineral resources of the former, by affording a market in the latter, thereby adding to the commerce and wealth of both.

The act to incorporate the York and Cumberland Railroad Company was passed by the Legislature of Pennsylvania in the month of April, 1846. By said act the company are empowered to construct "a railroad from the borough of York to unite with the Cumberland Valley Railroad, at some point between Mechanicsburg and the Susquehanna river." The capital stock of the company is limited to 60,000 shares of \$25 each; the person subscribing for the same to pay at the time one dollar on each share taken. When 3000 shares shall have been taken, and the fact duly certified to the Governor of Pennsylvania, he shall, "by letters patent, under his hand and the seal of the commonwealth, create and erect the subscribers, together with those who may afterwards subscribe, in a body politic and corporate, in deed and in law, by the name, style and title of the York and Cumberland Railroad Company, and by that name to have perpetual succession, etc. It is further provided, that, "if the said company do not complete the said work, so as to bring it into use, within five years after the passage of this act, then this charter shall become null and void." For further details this board are respectfully referred to the charter itself.

Though the road to be constructed under this charter will be within the limits of the State of Pennsylvania, yet it is our own State that is most deeply interested in its completion. By this means, her large investment, and that of the city of Baltimore, in the Baltimore and Susquehanna Railroad, may soon be made profitable; while the vast amount of trade which would be attracted to our city, would add a new and important item to the sources of her commercial prosperity. Though many enterprising citizens of Pennsylvania are ready to embark their capital in the undertaking, yet they naturally look to Baltimore for the first movement and principal aid. They look especially to this company—as the party most immediately interested,—to take the lead, by proposing some definite and concerted action, upon the subject. The question then presents itself, shall the work now be started, or shall the charter heretofore granted be suffered to expire by its own limitation?

Before answering this question, the committee propose to consider—

#### 1.—COST OF CONSTRUCTING THE ROAD.

This, according to the estimate of the able engineer, Mr. Trimble, would be about \$500,000.

The committee themselves made a careful observation of two of the routes which have

been proposed, viz:—One from York down the Codorus creek to its mouth, thence up Susquehanna river, along, or near its banks, to the Cumberland Valley railroad, at the bridge opposite Harrisburg. The other route would leave the Codorus about a mile below York, and running in a northern direction, strike the Susquehanna at York Haven, about five miles above the mouth of the Codorus. Neither of these routes would exceed twenty-nine miles in length: and by far the greater portion of both, lying along the banks of the Susquehanna, is remarkably free from difficulties, presenting one of the easiest and cheapest rail routes in the country.

The object of the committee being, not to decide which would be the best location for the road, but only to ascertain that at least one practicable route existed, they did not examine others to which their attention was invited. It is proper, however, to state that the opinion is entertained by some of the citizens of York county, that a favorable route for the road may be found by running from York north-westwardly, through, or near Lewisburg, and intersecting the Cumberland Valley railroad some four or five miles west of the Susquehanna. Before the road is finally located, all the country over which the charter authorizes it to be constructed, should, of course, be carefully examined, and that route selected which, under all circumstances, offers the greatest advantages.

For further information on this branch of the subject, we refer the Board to the communication of Mr. Trimble, presented with this report.

#### II.—THE PROBABLE AMOUNT OF THE BUSINESS OF THE ROAD.

At whatever point the road from York may unite with the Cumberland Valley railroad, the connexion between York and Harrisburg will be complete, inasmuch as the Cumberland Valley road unites with the Harrisburg and Lancaster railroad, near the canal basin at Harrisburg. Baltimore would thus have a continuous and most desirable connexion with all the principal lines of the Pennsylvania improvements. The Cumberland Valley and the Franklin railroads extend from Hagerstown in Maryland, to Harrisburg, a distance of upwards of seventy miles, through the Cumberland Valley, one of the most populous and fertile regions of America. Some idea may be formed of the value of the annual products of this valley from the statistics furnished by the census of 1840. The following table shows the aggregate of some of the principal products and manufactures for that year, of the six counties of Bedford, Franklin, Cumberland, Dauphin, York, and Adams—and also the whole amount of the same products and manufactures for that year, of the State of Maryland:

Six counties of Pa.		Maryland.
Wheat—bushels.....	2,458,312	3,345,783
Rye do .....	1,413,863	723,577
Oats do .....	3,139,401	3,534,211
Corn do .....	2,958,104	8,233,066
Distilled and fermented—		
Liquors—gallons.....	1,043,697	366,213

For the products of these six counties—



nearly equal to those of our entire State.—Baltimore is the nearest and natural market. Large quantities are now sent from some of these counties, by wagons, to York, hence to be sent by railroad to Baltimore; but far the greater proportion, attracted by superior facilities of communication, is carried to Philadelphia. By constructing the proposed road, we would bring the rich granaries of this region within a few hours' travel of Baltimore, and might reasonably expect to secure almost the whole of this trade.

The committee have been furnished with a statement of the business of the Cumberland Valley railroad, by which it appears that the transportation over that road for the year 1846 amount to 45,453,990 lbs, and for five months of the year 1847, to 32,287,158 lbs.

Besides the Cumberland Valley railroad, the Pennsylvania canal would also meet us at Harrisburg. This immense work, extending through the heart of Pennsylvania, connects the waters of the Susquehanna with those of the Ohio and Lake Erie. Its length, (including the Portage railroad of 36 miles,) from Harrisburg to Pittsburg is 284½ miles, and from Beaver to Lake Erie 116 miles; total 420½ miles. But besides the main line, branches of this canal have been extended into various sections of the State. One of these extends from Duncan's Island, at the mouth of the Juniata, up the Susquehanna to Northumberland, a distance of 39 miles. At this point two other branches start; one running with the north branch of the Susquehanna 73 miles, to Lackawannock, the other with the west branch 72 miles, to Dunstown. The latter branch of the canal is met at Williamsport by a railroad, the greater portion of which is finished, extending from Elmira in New York. Elmira connects by canal with the most important lines of improvements of that State; and a railroad of but 30 miles in length is wanting to connect Williamsport with the great New York and Erie railroad, now in progress of construction. These various branches of the canal pierce the rich counties of Dauphin, Perry, Juniata, Union, Columbia, Northumberland, Luzerne, Bradford, and Lycoming,—abounding in lumber, iron, and grain, and containing some of the most extensive and valuable coal fields in the world.

Between York and Harrisburg, on the east bank of the Susquehanna, is Middletown, the greatest lumber market perhaps in the country. The following estimate of the number of feet brought down the river annually to this point, has been furnished by a gentleman of York, who has given considerable attention to the subject:

Boards—300,000,000 feet board measure,	\$3,000,000
Timber—150,000,000 do do	1,500,000

Total value of annual trade ..... \$4,500,000

Both of the routes for the York and Cumberland railroad, which were examined by the committee, pass up the river immediately opposite this place, and could be connected with it by a bridge of one mile in length. The privilege of bridging the river at this point was not granted in the present charter,

but no doubt could be hereafter obtained. Besides serving to bring this valuable trade upon the railroad, a bridge here would be of great advantage to the neighboring country; and, as a toll bridge would nearly pay the interest upon the cost of its construction.

It will be found by reference to the census statistics of 1840, that two-thirds of the iron manufactured in Pennsylvania is made in the counties west of the Susquehanna. Should the proposed road be made, Baltimore will be the most convenient market for this trade, and cannot fail to receive a large proportion of it.

But the source from which this road would ultimately realize its largest profits, is the COAL TRADE. In the upper part of Dauphin county, and near the Susquehanna river, are the Lyken's Valley, Berry's Mountain, Bear Valley, and Stoney Creek coal basins—the three first anthracite, the last bituminous. The coal of this region in quality has no superior. In quantity it is inexhaustible. The report of an intelligent committee, who had visited these basins, made to the Legislature of Pennsylvania in 1839, estimates that Bear Valley basin alone contains 658,240,000 tons; while some have estimated its deposits as high as 4,000,000,000 of tons! If the York and Cumberland railroad be made to Harrisburg, the day will not be distant when it will be extended into the heart of these coal basins. From Harrisburg to Dauphin town or Port Lyon, at the mouth of Stony Creek, is 8 miles; from thence to the bituminous coal beds of Stoney Creek Valley, is 13 miles. From Dauphin town to the anthracite coal beds of Berry's Mountain is a distance of 29 miles. The whole distance from Baltimore to the bituminous coal basin of Stony Creek, would be only 108 miles; to the anthracite coal fields of Berry's Mountain 124 miles,—the former a shorter route than that of the Schuylkill coal sent to Philadelphia by the Reading railroad. Coal could be delivered by this route in Baltimore much cheaper than it can be supplied by any existing or proposed route from any fields yet discovered. Canal and railroad connexions already exist between Harrisburg and these coal basins—and considerable quantities have been brought into the market. But the completion of the York and Cumberland road would give a new impetus to this trade, by affording it a shorter and cheaper avenue to the waters of the Chesapeake.

We have thus far been considering the probable business of the York and Cumberland railroad, if dependent solely upon the trade of Pennsylvania. But another great enterprise has been commenced, which, when completed, must ensure to this road an amount of business that will make it one of the most profitable railroads in the Union. The charter for the Pennsylvania Central road, to extend from Harrisburg to Pittsburg, was granted in February, 1846. The importance of this road to the trade of Philadelphia has called forth the most zealous efforts of her citizens to hasten its completion. Three millions of stock, or nearly half the amount required, have already been taken; and sec-

tions of the road are about to be put under contract.

The length of the road from Harrisburg to Pittsburg will be 228 miles, and its estimated cost is something over \$7,000,000—or about \$31,000 per mile. Philadelphia has already a railroad connection with Harrisburg by a route of 106½ miles. By finishing the Central road, she will have a continuous railroad connexion with the waters of the Ohio at Pittsburg, by a route of 334½ miles. Can it be doubted that this connexion will be speedily made?

To be continued.

#### Rust.

All the common metals, except tin, rust; they become duller and duller up to a certain degree, lose gradually their lustre, and then the process goes no further. Instead of this rusting being a destroyer of the metal, it is a preserver; for, even in the case of iron, which rusts quickly as compared with other metals, if it be dipped into tin, it comes out coated with it, and it is preserved beautifully. If iron be exposed for a couple of hours to the action of water, the iron becomes quite corroded; but when tinned, the iron is protected, and the tin itself appears unaffected. How is it that this metal can protect itself, and the iron under it? It is simply owing to the substance formed on the surface by the attraction of oxygen, which is so adherent to the metal beneath. It gives a protection which no varnish or any kind of application can afford. Take a copper or a tin plate, they are both protected in their metallic state by a thin coat, formed in the first instance, of oxide. It is only because this coat is so exceedingly compact, close, and adherent, that it passes for nothing—a mere film of tarnish. You think you see, or touch, a piece of tin; you cannot detect the film, except by close examination. We know it is there, but it is only by optical phenomena that we can measure its thickness. It seems clean and beautiful, but if you rub it off, you will give the metal beneath a new character; the beautiful lustre, however, passes off the first moment up to a certain point. The body formed by the combination of oxygen with iron is different. The oxide does not adhere to the metal beneath; it forms upon it little spots, or porous tumuli. It is not an investing varnish, but the process goes on through the pores of the rust, especially if the metal be placed in a damp atmosphere. This is the reason why we find a difference between copper, iron, tin, and lead, when used for roofs, or other external purposes. The iron alone is eaten into and destroyed, by this want of adhesion in its rust to the surface of the metal. "It is curious to observe, in some cases, how tin, a metal having a slight attraction for oxygen, protects other metals from oxidation. In Canada, tin plate is used for the roofs of houses; I am told that you are dazzled by the attraction of the setting sun upon the roofs of houses; and there, although it is exposed to the atmosphere year after year, it does not decay, because the superficial coat of oxide protects the tin and iron beneath."—Faraday.

## Institution of Civil Engineers.

June 8.—Sir J. Rennie, President, in the chair.—The paper read was "On the Expansive Action of Steam," by Mr. J. M. Heppel. The object of the paper was to deduce a more exact formula than those now in use for the dynamical effect developed by steam in expanding from one pressure to another. The usual method of computing this effect neglects the influence of the variation of temperature, which always accompanies change of density, and which has been shown to modify considerably the corresponding pressure. M. de Pambour, however, has, by combining Gay Lussac's formula for the relation between temperature and density under uniform pressure with that of Boyle for the relation between density and pressure under uniform temperature, deduced a formula containing the density, pressure and temperature from which any two being given the third may be deduced. What was further done in Mr. Heppel's paper, was to combine this formula with one by Mr. Scott Russell, expressing the relation between the pressure and temperature, and by this means to eliminate the latter, and obtain a formula containing only the pressure and density. From this formula another was easily obtained, showing the total dynamical action developed during expansion from one pressure to another, and the results were given in a tabular form exhibiting—1. The pressure in pounds per square inch. 2. The relative volume or ratio of the volume of steam to that of the water that produced it. 3. The dynamical effect before expansion, or the number of pounds raised one inch by the evaporation of each cubic inch of water. 4. The dynamical effect during expansion, or the number of pounds raised one inch by the steam produced from one cubic inch of water in expanding from a pressure of 100 pounds per square inch to the particular corresponding pressure. The dynamical effect in expanding from any one pressure to any other must be clearly expressed by the difference of the corresponding numbers in this column. Part of the remainder of the paper was devoted to showing that while the performance of engines could not possibly be expected to exceed the results ascertained as above, it should not fall far short of them in the case of engines of good construction. In conclusion, a simple method was suggested of ascertaining the magnitude of all the forces in action during the working of the Cornish engine, independently of the indicator. In the course of the paper, the fallacy of the theory of what had been termed the "percussive action of steam" was ably exposed, and although from the paper being full of mathematical formula, it was not adapted to be read at a public meeting, it evidently possessed great merit as an investigation of an important subject.

This paper was followed by a short one also, "On the Expansive Action of Steam," by Mr. Tate, mathematical master of the training college, Battersea. Its object was to demonstrate and apply a formula some time since discovered by the author, expressing the law of the expansion of steam, and at the

same time to establish certain general equations relative to the work of steam, applicable to all formula professing to give the law of volume and pressure. It also examined and corrected Pole's formula, which although a decided improvement upon Pambour's was stated not to be sufficiently accurate for pressures above 70 or below 18 pounds.

M. Piaget exhibited in the library, after the close of the meeting, specimens of his improvements in producing ornamental metal surfaces formed by the deposition of metals during the electrotype process, which is conducted in a peculiar manner with mixtures adapted to the effect desired to be attained. The form also of the bath is peculiar, and when the plate is taken out of it and off the model, it exhibits a burnished polish or a dead appearance according to the preparation used. The metal thus produced is stated to be of a much better description than metals which have not undergone such process, as it is more flexible, and is capable of withstanding the action of heat without destroying the form of the copper, and the surface will not tarnish when exposed to the air. Portions of any pattern can also be silvered by a similar process, and the general expense is about one-third of that of engraving or chasing, while the boldest or most minute patterns can be equally well produced.

June 15.—Sir J. Rennie in the chair.—The paper read was, "On the Law which Governs the discharge of Elastic Fluids under Pressure through Short Tubes and Orifices," by W. Froude. The subject of the paper admitted of a much longer communication than could be read at one meeting, and the train of reasoning was such as could scarcely be perfectly entered into on merely hearing it read. A short review of it must suffice. The law proposed was a modification of that which has been usually assumed viz: a simple application of that which holds good with respect to non-elastic fluids. This law is generally that the velocity of issue is directly as the square root of the pressure, and inversely as the square root of the density—but this law neglects wholly the re-action that must arise from the expansion necessarily taking place in the course of issue.

The nature of the action was illustrated by the following example: let a balance be supposed, with an equal weight in each scale, one of the weights being a spiral spring, like that of a spring balance, compressed lengthwise with its axis vertical, and held in a state of compression by a cord, now let the cord be suddenly reversed so that the spring is enabled to extend itself vertically. The scale in which it stands will obviously be depressed, the spring reacting on it as it expands upwards, and continuing to press till wholly relaxed; or if the scale in which it stands were ascending by a preponderance given to the other scale, the rate of its ascent would be in the same way retarded. The amount of the retardation would depend on the strength and weight of the spring, and on the length to which it would extend itself when released. Now in the discharge of an elastic fluid, there is an action, strictly analogous, operating con-

tinuously, however, instead of *per saltum*, the strength and weight of the spring being represented by the elasticity and density of the fluid, and the length to which it would extend itself by the degree of expansion, in the course of issue. The reduction in quantity of discharge due to the action was to be measured by the velocity imparted by expansion to each particle of the elastic fluid in course of issue, the velocity of each particle after expansion would be its velocity before expansion, multiplied into the rate of expansion, and the primary force must be subdivided in generating each additional unit of velocity, so that the portion applicable to the generation of velocity before expansion would be the whole force divided by the rate of expansion. Thus the velocity before expansion would be divided by the square root of that rate. For instance, an elastic fluid expanding four times in course of issue would be discharged with only half the velocity of a non-elastic fluid, under the same circumstances of pressure and density. This modification was shown to fulfil the general dynamical law, "that a given force acting for a given time will produce a given momentum, whatever be the weight of the mass acted upon." This seemed to be the essence of the law for non-elastic fluids; but it was disregarded by the unmodified application of that law to elastic fluids, in which there would be a great accession of velocity of particles issuing under a given pressure, without any reduction of quantity discharged in a given time. If, however, the quantity be reduced, as proposed, in the ratio of the square root of the density, and the velocity be accelerated in the same ratio, the final momentum would be the true equivalent of the pressure. This, in its practical application, explained what was inexplicable by the ordinary theory—the difficulty experienced from the back pressure of the waste steam in locomotive engines; and a diagram was given, showing that at 60 miles per hour this would be at the least equivalent to 8 lb. per inch throughout the stroke,—thus showing a loss of nearly 50 horse power. As applied in the case of air discharged into an exhausted receiver, the result was highly curious. The rate of discharge, instead of increasing throughout as the degree of vacuum was increased, would be maximum at 15 inches of vacuum, although nearly uniform for many inches above and below that point. It would, however, progressively decrease above that point, because the expansion would increase in a higher ratio than the pressure, and ultimately, at the point of perfect vacuum, it would be at a minimum, (indeed stationary, were air perfectly elastic,) because at that point the expansion would be infinite, but the pressure only finite, viz., 80 inches of mercury. Experiments made, by permission of Mr. Brunel, with the South Devon atmospheric apparatus, confirmed the theory. The line traced by an indicator apparatus was shown to accord very closely with one traced by this theory, whilst it was widely at variance with the result of the ordinary theory.

After the meeting, Mr. Lambert exhibited



his flexible diaphragm water valve, which was intended to remedy some of the defects of the plugcock. It avoided the leakage and necessity of repairs. There was apparently no friction, and it seemed very durable, and well calculated for the newly introduced system of constant pressure.

June 22.—Sir J. Rennie, President, in the chair.—The paper read was by Mr. J. Glynn, giving "An account of the plans that have been proposed for connecting the Atlantic and Pacific Oceans by a navigable canal." The author took a review of these projects from the time of Cortez, who proposed to cross the Isthmus of Tehuantepec by joining the waters of the river Coatzacoalcas, which flows into the gulf of Mexico, with those of the river Chicapa flowing into the Pacific, by the bay of Tehuantepec; a plan which has lately been revived by Don Jose de Garay, who, with the assistance of Signor Moro, surveyed the country from sea to sea, and showed that the chain of mountains is there broken for about thirty-five miles, giving place to an elevated plain or table land, called the Mesa de Tarifa, where both these rivers originate, and where their junction would be easily effected. The objections to this plan are the length of the river navigation, about 200 miles, and the ascent of the stream to the Mesa de Tarifa, about 200 metres, or 656 feet above the ocean. The survey was made under the patronage of the Mexican President, General Santa Anna, who professed to grant many important privileges to the promoters. The Isthmus of Nicaragua was next examined, and then the course of the river St. John to the lake, which is a little more than fifteen miles distant from the Pacific Ocean, and about 130 feet above its level. The distances and the levels were accurately taken by Mr. Bailey, an officer in the Royal Marines, by desire of General Marazon, President of the Central American Republic. The ridge of hills intervening between the lake and the ocean, and the uncertainty of the waters in the river St. John, alternately swollen by the rains or dried up by the heat of a tropical sun, the volcanic character of the country, and the unhealthy nature of the climate on this river, from which Lord Nelson's expedition suffered so much, render the execution of such an undertaking at this place very improbable. The Isthmus of Panama presents fewer obstacles than any other point. The distance from sea to sea is only about thirty-nine miles, and the country is traversed for nearly the whole width by the great rivers of Chagres and its tributaries, which are interlaced as it were with the streams flowing to the Pacific. The chain of mountains here sinks into extensive savannahs and forests, with a few detached and isolated hills, and small elevations seldom exceeding 500 feet in height. The country was surveyed in 1828, at the instance of General Bolivar, by Mr. Lloyd, an English officer, who also took the levels, and determined the difference between the two oceans to be 34 feet (352.) the waters of the Pacific being the highest. Mr. Lloyd's valuable papers, deposited with the

Royal Society and the Royal Geographical Society, were exhibited to illustrate the paper. A survey of the river Chagres was also made by order of the Admiralty, during which Capt. Foster, of her Majesty's ship *Chanticleer* lost his life. The maps, plans, sections, and other valuable information deposited with these societies seem to have created but little interest in England, but they have been diligently examined, and extracts and copies taken by foreigners who have had free access to them, especially by the French; and M. Guizot lately sent M. Napoleon Garella, as engineer-in-chief, with a numerous staff of assistants, to make a further survey, and ascertain the practicability of making a canal. This survey has fully confirmed that of Mr. Lloyd, and proves that there are no obstacles which engineers and contractors of the present day could not encounter and overcome without much difficulty or expense, the difficulties being more of a political character, and to be dealt with by statesmen rather than by engineers. The meeting was very fully attended, and an interesting discussion ensued, in which Prince Louis Napoleon took an active part. He traced a line between the lakes Nicaragua and Leon, which he recommended as preferable, on account of the local facilities, the salubrity of the climate, the already populated character of the country, and the advantages of the two lakes, which at a small expense may be converted into harbors accessible at all times for vessels of heavy tonnage. The plans proposed by his royal highness appeared to meet the views of the meeting, as far as a ship canal was concerned, but it was agreed that for quick transit by railway, the lines traced by Mr. Lloyd over the Isthmus of Panama were to be preferred.

#### Railway Accidents.

The way to avoid accidents is to know how they do and may occur.

#### Accident on the Great Western Railway.

—An accident attended with great loss of property, occurred on Friday morning on the Gt. Western railway, between the Chippenham and Wootton Bassett stations. It appears that a goods train, consisting of between thirty and forty trucks, containing merchandise and cattle, and propelled by two powerful engines, one of which was in the rear of the train, left the Chippenham station about one o'clock in the morning, and proceeded as far as the bottom of the inclined plane near Wootton Bassett station, when a chain, connecting the two parts of a timber wagon, broke, and the leading engine ran away with a few trucks and the fore part of that containing the timber. One end of the timber being thus left without support, immediately fell and buried itself in the ground, forming an obstacle to the progress of the train. The driver of the engine behind the train not being aware of what had occurred, and attributing the additional resistance to the inclined plane, left his steam on and drove the wagons one over the other with tremendous force.—About a dozen trucks were more or less damaged, one being driven completely into a field near the line, and several quite smashed

up. Between thirty and forty sheep and two calves were also killed. The state of the line, covered with broken wagons and dead and dying animals, may be better conceived than described. We are happy to say that the guards and engine drivers escaped unhurt. No passengers are taken by the goods trains on the Great Western railway.—*Bath Journal*.

**The Dee Bridge Accident.**—Herapath says that the evidence in this melancholy accident has been closed with a verdict by the jury, that the bridge gave way not from any lateral blow, but from insufficient strength of the cast iron girders. The jury at the same time travel out of their way to condemn 100 railway bridges of the same kind built and building in various parts of the country.

Whether the bridge was of sufficient strength, or whether it was not, we have not gone into the computation, so as to be able to answer. Mr. R. Stephenson, Mr. Locke and Mr. Vignoles, who are all experienced men, and have constructed several bridges of the kind, allege it was sufficiently strong. The government engineers, Capt. Simmonds and Mr. James Walker, C. E., report as Mr. Walker usually has, that is, as locomotives are able to go, forward or backward, or rather like the oracles of old, so as to be interpreted either or any way—a method, in our opinion, far from creditable and demonstrative of conscientious ignorance, or of a lack of moral courage to speak their sentiments. Mr. Robertson, C. E., on the other hand, boldly declares the bridge to have been too weak theoretically and practically, and endeavors to support his opinion by calculation.

As before observed, we can give no opinion on this subject, from not having gone into the inquiry. Generally we are against cast iron and suspension bridges, particularly when the former are constructed of straight cast iron girders; but, still it is possible to make them strong enough, and Stevenson has not hitherto shown himself too niggardly of expense, when strength is the object. If he has erred that way now, we believe it is the exception, not the rule.

We would not be understood to defend or condemn him in this instance, simply because we have not data before us to do either with conscientious safety. The jury have no doubt done what they thought to be right; and we have therefore no reason to blame them, as far as the Dee bridge is concerned. We cannot, however, help thinking that they have been somewhat rash, unacquainted, as they were admitted to be by the coroner, of engineering matters, to give so positive an opinion of the cause of the accident, and of the insufficiency of the strength of the bridge.—Men of sound science and experience never exhibit that dogmatic confidence.

We are also surprized at the fling which they give to these structures generally. What may be their own opinions of themselves, it is not difficult to guess, but we much doubt if their temerity and dogmatism will realize anything with men whose opinions are worth having beyond a smile at their complacent self-sufficiency.

**Metallic Hub, Spoke, and Rim.**—A Mr. Holmes of Moscow, N. Y., has at length perfected a metallic hub, spoke and rim, carriage or wagon wheel, by bracing the spokes in two rows on the hub, which is in two parts, a cylinder in which the spoke is screwed or riveted, and the axle sheathed. The spoke is also riveted or screwed into the rim.

**Another Smoke Consumer.**—A patent has been taken out by Messrs. W. G. and W. Taylor, London, to be applied to all furnaces constructed in the ordinary manner, with open ash-pits, for affecting a more perfect combustion of the inflammable gases and unconsumed carbon. It consists, first, in the application of an exhausting and blowing apparatus; and secondly in a peculiar distribution or arrangement of the smoke flues, so as to be adapted to the operations of such apparatus. A fan or blower is applied to the flue just before the entrance to the chimney, to arrest the smoke and unconsumed gases, and force them through a flue, leading therefrom, an opening on, to the dead plate at or near the front of the fire bars. By this means the whole is passed over the incandescent fuel where it is consumed instead of passing up the chimney unconsumed.

**ATLANTIC AND ST. LAWRENCE RAILROAD.**—Notice to Contractors.—Proposals in writing will be received at the office of the Atlantic and St. Lawrence Railroad Company, in the city of Portland, until Tuesday, the tenth day of August next, inclusive, at sunset, for the grading, masonry, and bridging of that portion of their road extending from the termination of the second division near the hotel road in Danville, to a place in the vicinity of Norway and Paris cove, a distance of about 20 miles.

Maps, profiles, and specifications will be ready for examination on and after the second day of August next, at the Engineer's office in Portland, where all necessary information will be given.

The company will require, as one of the stipulations of the contract, that the heavier work on any section, shall be first attended to, so that the heavier and lighter work may be completed at nearly the same time.

Persons unknown to the officers of the company must accompany their bids with satisfactory evidence of their ability to execute the work. In all cases good and sufficient bonds with two or more sureties will be required for the faithful performance and fulfilment of the contract.

WM. P. PREBLE, President.

Portland, June 30, 1847.

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**MICHIGAN CENTRAL RAILROAD.**—NOTICE TO CONTRACTORS.—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of Col. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors.

J. W. BROOKS, Supt.

Michigan Central Railroad Office,  
6126 Detroit, June 17, 1847.

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fittings.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

\* \* Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

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**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

## FRENCH AND BAIRD'S PATENT SPARK ARRESTER

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Supt Hartford and New Haven Railroad; W. R. M'Kee, Supt Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Supt New Jersey Railroad Trans. Co.; J. Elliott, Supt Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Supt Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Supt Macon Railroad, Macon, Ga.; J. H. Cleveland, Supt Southern Railroad, Monroe, Mich.; M. F. Chittenden, Supt M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinkley & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\* \* The letters in the figures refer to the article given in the Journal of June, 1844.

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**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston.

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**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

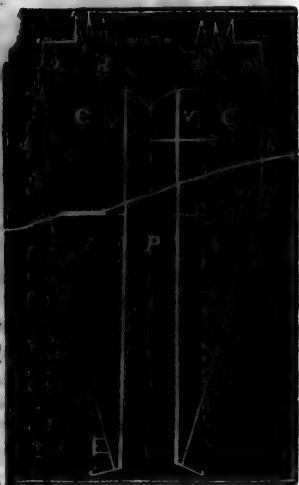
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

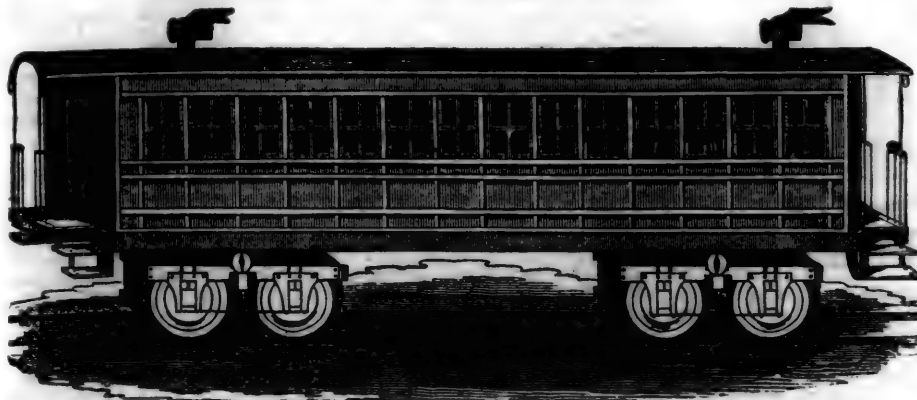
ROGERS, KETCHUM & GROSVENOR, 445 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

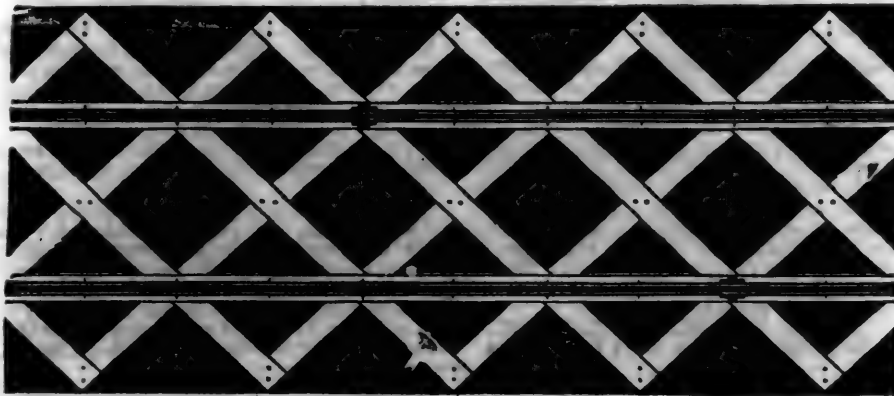


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$19 =	\$696 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33f

### LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

ENGINEERS' AND SURVEYORS'

**INSTRUMENTS MADE BY  
EDMUND DRAPER,**

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.  
West Troy, May 12, 1847.

**THE SUBSCRIBER** has on hand a good assortment of his best Levelling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.  
1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

19f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents,  
1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

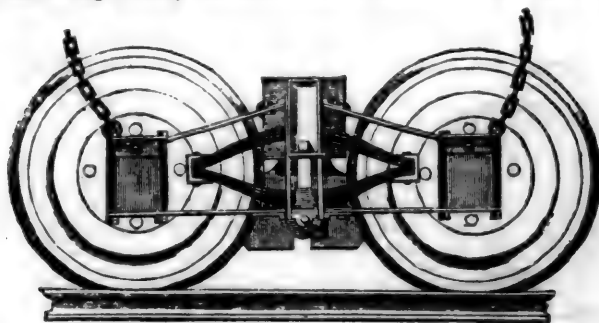
For sale in lots to suit purchasers, in tight paper barrels, by

JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 331y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad. To all whom it may concern:—This is to certify that the New Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup<sup>r</sup> Motive Power

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4 $\frac{1}{2}$	13 5	10	24 -		50	15-16	20
13	3 $\frac{1}{2}$	9 3	8 $\frac{1}{2}$	16 -		27	11-16	13 $\frac{1}{2}$
14	3 $\frac{1}{4}$	6 11	7 $\frac{1}{2}$	12 8		17	9-16	10 $\frac{1}{2}$
15	2 $\frac{1}{2}$	5 2	6 $\frac{1}{2}$	9 4		13 $\frac{1}{2}$	1-2	7 $\frac{1}{2}$
16	2 $\frac{1}{4}$	4 3	6	8 8		10 $\frac{1}{2}$	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 30 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y35

Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard

now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [1lf] 68 Broad St., New York.

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45

Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

a45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents.

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10lf

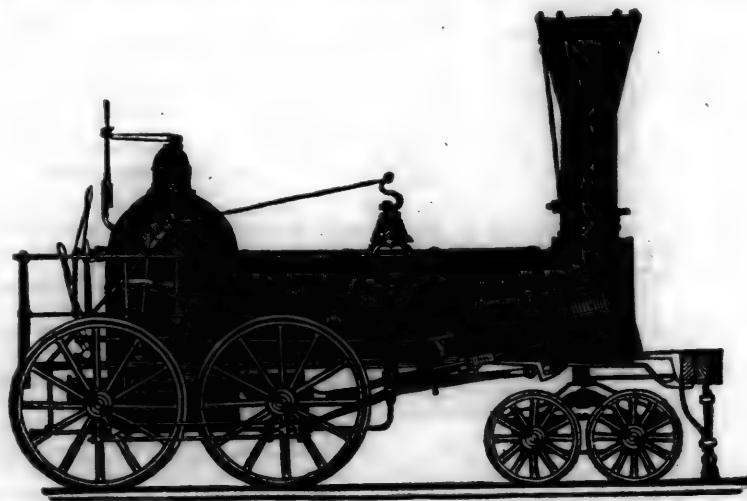
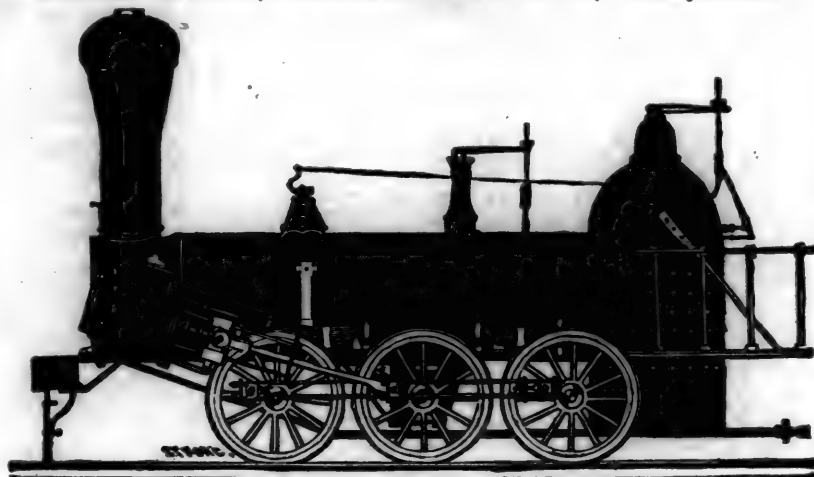
**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

46lf



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper, }  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia. 28th

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. j245

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

### WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 9 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by **MORRIS, TASKER & MORRIS.** Warehouse: S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11th

### PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.  
1y10 New York.

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address

**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
4tf Philadelphia, Pa.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

**REEVES, BUCK & CO.,** Philadelphia.  
**ROBERT NICHOLS, Agent,**  
26tf No. 79 Water St., New York.

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

**JOAN F. WINSLOW, Agent,**  
1y Albany Iron and Nail Works,

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART,**  
12 Platt street, New York.

**JOB CUTLER, Patentee.**

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28tf

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**CONCORD RAILROAD.—PASSENGER** Trains in connection with the Lowell & Nashua Railroads, run daily between Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

26tf **N. G. UPHAM, Supt.**

**NEW YORK AND ERIE RAILROAD LINE** SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½ A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

21tf **H. C. SEYMOUR, Supt.**

**WESTERN RAILROAD.—ON AND AFTER** Monday, April 5, 1847, the passenger trains will leave daily. Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany.

Springfield at 8 1-2 a. m. and 1 1-3 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champlain. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

**JAMES BARNES, Supt and Eng'r.**  
**C. A. SEAD, Agent, 27 State street, Boston.**

**BOSTON AND PROVIDENCE RAILROAD.** Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington.—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

25tf **W. RAYMOND LEE, Supt.**

**NEW YORK & HARLEM RAILROAD** CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars

will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—Freight train at 1 p.m.

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 34 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 18 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

**ON SUNDAYS,** the trains will run as follows: Leave City Hall for Croton Falls, 7 a.m., 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87c., to Newcastle 75c., to Pleasantville 62½c., to White Plains 50c. 25tf

**LONG ISLAND RAILROAD COMPANY.** Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4½ p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

25tf **DAVID S. IVES, Supt.**

**PATERSON RAILROAD** Summer Arrangement. Commencing April 20th, 1847, the cars will leave

Paterson at New York at  
8 o'clock a.m. 9½ o'clock a.m.  
11½ o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5½ o'clock p.m.

On Sunday.  
8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.  
25tf Office 75 Courtlandt St.



# **BALTIMORE AND SUSQUEHANNA** Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger  
trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

## **FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½  
Way points in proportion.

## **PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Har-  
risburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3½ o'clock,  
a horse car is run to Green Spring and Owing's  
Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

# **BOSTON AND MAINE RAILROAD.** Upper Route, to Portland and the East.

## **SUMMER ARRANGEMENT,**

April 1, 1847.

## **PORTLAND TRAINS.**

Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.

## **GREAT FALLS TRAIN.**

Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

## **HAVERHILL TRAINS.**

Leave Boston at 11½ A.M. and 6-20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

## **READING TRAINS.**

Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

## **MEDFORD BRANCH TRAINS.**

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage  
above \$50 in value, and that *personal*, unless no-  
tice is given, and an extra amount paid, at the rate  
of the price of a Ticket for every \$500 additional  
value.

1y31 CHAS. MINOT, Sup't.

# **NORWICH AND WORCESTER RAIL- Road.** Summer Arrangement. Change of

Hours. Commencing on

Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4½ p.m. Leave  
Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from  
Norwich, and from Worcester, connect with the  
trains of the Boston, and Worcester and Western  
railroads each way.

The Evening Accommodation Train from Wor-  
cester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Nor-  
wich for Boston, every morning, except Monday, on  
the arrival of the steamboat from New York, stop-  
ping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival  
of the train from Boston, at about 6½ p.m., daily, ex-  
cept Sunday, stopping at Danielsonville and Nor-  
wich.

Freight Trains daily each way, except Sunday.—  
Leave Norwich at 7, and Worcester at 6 30 a.m.  
Special contracts will be made for cargoes, or large  
quantities of freight, on application to the superinten-  
dent.

Fares are Less when paid for Tickets than when  
paid in the Cars. 31y J. W. STOWELL, Sup't

# **PHILADELPHIA AND READING RAIL- ROAD.**—Passenger Train Arrangement for 1847.

A Passenger Train will leave  
Philadelphia and Pottsville daily, except Sundays,  
at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading  
at 12 18 M.

The Train from Pottsville arrives at Reading at  
10 43 A.M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" " Reading, 58	2.25 and 1.90		
" " Pottsville, 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at  
other way stations.

Passenger Depot in Philadelphia corner of Broad  
and Vine streets.

# **PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

## **Summer Arrangement.**

Philadelphia for Baltimore...8 a.m. and 10 p.m.  
Baltimore for Philadelphia...9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.  
Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia &  
Wilmington.—Philadelphia to Wilmington, 8 a.m.,  
mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-  
mington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.  
m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

Engineer and General Superintendent.

# **CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Rail- roads.** On and after April

1st, 1847, passenger trains  
between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2,  
and 6 1-2 p.m., to connect at the junction in Wil-  
mington with the eastward trains—at 7 a.m. and  
2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to  
Great Falls only, with a detention of 45 minutes at  
the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to  
Haverhill only. Leaving the junction in Wilming-  
ton, for Lowell, at about 7 1-4 a.m. on arrival of the  
morning train from Haverhill; at about 9 a.m., on  
arrival of the morning trains from Great Falls. At  
about 11 3-4 a.m., on arrival of the morning train  
from Portland. At about 5 p.m. on arrival of the  
afternoon trains from Haverhill. At about 7 1-4 p.  
m. on arrival of the afternoon train from Portland.  
WALDO HIGGINSON, Agent.

# **NEW YORK AND PHILADELPHIA RAIL- road line—direct.** Via Newark, New Brun- swick, Princeton, Trenton,

and Bristol. (Through in  
six hours.) Leaving New York daily from the foot  
of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change  
of cars, and thence by the new steamer, "John Ste-  
vens," to Philadelphia.

## **FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars.....3 00

Passengers will procure their Tickets at the office  
foot of Liberty st., where a commodious steamboat  
will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each  
passenger in this line, and passengers are expressly  
prohibited from taking anything as baggage but  
their wearing apparel, which will be at the risk of  
the owner.

Philadelphia Baggage-crates are conveyed from  
city to city, without being opened by the way. Each  
train is provided with a car, in which are apart-  
ments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the  
foot of Walnut st. at 9 a.m., and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily,  
except Sundays, at 8 a.m., 3½ and 10 p.m., and Sun-  
days only at 10 p.m.—being a continuation of the  
line from New York.

# **LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 64 miles—**

connecting at Xenia and Spring-  
field with Messrs. Neil, Moore,  
& Co's. daily daylight lines of stages going east  
and north, to Columbus, Zanesville, Wheeling,  
Cleveland, and Sandusky City. via Urbana, Belle-  
fontaine, Kenton, and the Mad river and Lake Erie  
railroad, or Columbus, Delaware, and the Mansfield  
and Sandusky City railroad—forming, by these con-  
nections, the cheapest and most expeditious route to  
Buffalo, Niagara Falls, Rochester, Albany, New  
York, and Boston.

On and after Thursday, August 13, 1846, until  
further notice, a Passenger train will run as follows:  
Leave Cincinnati daily at 9 A. M., for Milford,  
Foster's Crossing, Deerfield, Morrow, Fort Ancient,  
Freepot, Waynesville, Spring Valley, Xenia, Old  
Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35  
minutes A. M. A line of Hacks runs in connection  
with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.....\$1 00  
" " " Xenia.....1 50  
" " " Springfield...2 00  
" " " Columbus...4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with  
Strader & Gorman's line of Mail Packets to Louis-  
ville.

Tickets can be procured at the Broadway Hotel,  
Dennison House, or at the Depot of the Company  
on East Front street.

Further information and through tickets for the  
Stage lines, may be procured at P. Campbell, Agent  
on Front street, near Broadway.

The company will not be responsible for baggage  
beyond 50 dollars in value, unless the same is re-  
turned to the conductor or agent, and freight paid at  
of a passage for every \$500 in value over that  
amount.

The 1½ P. M. train from Cincinnati, and the 9  
40 P. M. train from Xenia, will be discontinued on  
and after Monday, the 10th instant.

A freight train will run daily.  
47½ W. H. CLEMENT, Sup't.

# **BALTIMORE AND OHIO RAILROAD. MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and  
Cumberland at 8 o'clock, passing Ellicott's Mills,  
Frederick, Harpers Ferry, Martinsburgh and Han-  
cock, connecting daily each way with—the Wash-  
ington Trains at the Relay House seven miles  
from Baltimore, with the Winchester Trains at  
Harpers Ferry—with the various railroad and  
steamboat lines between Baltimore and Philadelphia  
and with the lines of Post Coaches between Cum-  
berland and Wheeling and the fine Steamboats on  
the Monongahela Slack Water between Browns-  
ville and Pittsburgh. Time of arrival at both Cum-  
berland and Baltimore 5½ P. M. Fare between  
those points \$7, and 4 cents per mile for less distan-  
ces. Fare through to Wheeling \$11 and time about  
36 hours, to Pittsburgh \$10, and time about 32 hours.  
Through tickets from Philadelphia to Wheeling  
\$13, to Pittsburgh \$12. Extra train daily except  
Sundays from Baltimore to Frederick at 4 P. M.,  
and from Frederick to Baltimore at 8 A. M.

## **WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at  
night from Baltimore and at 6 A. M. and 5½ P. M.  
from Washington, connecting daily with the lines  
North, South and West, at Baltimore, Washington  
and the Relay house. Fare \$1 60 through between  
Baltimore and Washington, in either direction, 4  
cents per mile for intermediate distances. 413½

# **LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.**

Trains leave Frankfort for Lex-  
ington daily, at 8 o'clock a.m. and 2 p.m. Dis-  
tance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from  
Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to  
15th March) is 6 o'clock a.m. from Lexington, and  
ma. 9. from Frankfort, other hours as above. 361½

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles.  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic .. 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	pr. 100lbs. 35
Crockery, per cubic foot.....	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	13 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free, of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846.

**CENTRAL RAILROAD-FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$3 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil)..... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons..... \$5 00 per hhd. On molasses and oil..... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.**—A Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily..... \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 23 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.** AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, 250 miles.	Between Charleston, Oothcaloga and Dalton, 286 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 16	\$0 26
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.....	8 50	13 50
	" " barrel.....	2 00	3 25
	Salt per bushel.....	0 17	95
	Salt per Liverpool sack.....		
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,  
Ch. Eng. and Gen. Agent.  
Augusta, Sept. 2d, 1846.

**GREAT SOUTHERN MAIL LINE!** VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston..... \$21 00  
" " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to STOKTON & FALLS, Agents.

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warren, Huntsville, Decatur and Tusculum, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.  
Atlanta, Georgia, April 16th, 1846.

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 23 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHOENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 31.]

SATURDAY, JULY 31, 1847.

[WHOLE No. 580, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, July 31, 1847.

## NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.

Proposals will be received at the Railroad Office, in Lewiston, until the 17th of August next, inclusive, for the Grading and Masonry of the 2d Division of this Road, extending from Green to Belgrade, near Snow's Pond, about 20 miles.

Profiles will be ready for examination on and after the 10th of August, and all necessary information will be given, either at this office, or upon application to the resident engineers on the line of the road.

Satisfactory bonds with sureties shall be given by the bidders, if required.

On the 16th of August, the Engineer will be prepared to accompany Contractors over the line of the road, commencing at the eastern end of the Division in Belgrade.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston,  
July 13, 1847. }

331

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise.] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advancements on consignments to their address.

July 31—3m

ROBERT GRACIE.

## Lehigh Coal and Navigation Company.

We give, in this number of the Journal, the last annual report of this company—with the exception of the tabular statements—a part or the whole of which will be given next week. This important work was one of the—if not the—pioneer works of Pennsylvania. It has been extended from time to time, and its usefulness increased very far beyond what its projectors anticipated when it was commenced; and it has probably contributed much more to the economy and comfort of those who use fuel, by its influence on the price of this necessary of life, than to the profit of those who invested their capital in its construction. We trust, however, that the rapidly increasing demand for the coal and iron of Pennsylvania will soon ensure to them liberal returns in the shape of dividends—as no class of capitalists are, in our opinion, entitled to better returns for their investments than those who construct works which so largely contribute to the comfort and prosperity of the masses of the people.

## Western Railroad.

The greatest weeks' work ever done on any American railroad, says the Bunker Hill Aurora of 24th inst., was probably done last week on the Western railroad. The gross amount of receipts, we learn, were \$28,725, being an increase of nearly ten thousand dollars over the receipts of the corresponding week last year. The prosperity of this great enterprise is still onward. The company, we are told, have never yet seen the time when they had road furniture sufficient for their business,—this the directors propose to turnish by means of the new stock, partly payable to-day.

The editor should, of course, have excepted the Philadelphia, Reading, and Pottsville railroad, which earned over thirty-six thousand five hundred dollars every week of the year 1846.

## Cumberland Valley Railroad.

The Carlisle Herald says that "the Cumberland Valley railroad company has made arrangements to lay a new track on the road between Carlisle and Harrisburg, and will commence the work without delay. The new rail will be a heavy bar of nearly double the thickness and weight of the old bar, and make a road far superior to the old for travelling purposes."

Why not lay the right sort of rail now? The time has arrived when none but rails of the most approved form and weight should be used. The

flat bar—even of double the ordinary thickness will be discarded on railroads of any considerable travel and business.

## Sullivan, N. H. Railroad.

At the annual meeting of the stockholders, held at Charlestown, N. H., on the 20th inst., the following Board of Directors was chosen:—Henry Hubbard, Ashbel Hamlin, Charlestown, N. H.; Isaac Parker, Franklin Evans, Boston; Daniel White, Charlestown, Mass.; John W. Tappan, William H. Farwell, Claremont, N. H.

At a meeting of the directors, the Hon. Henry Hubbard was chosen President; George Olcutt, Treasurer, and P. C. Freeman, clerk.

## Profitable Stock.

It is said "that the Commonwealth owns at this time 10,441 shares in the stock of the Western railroad company, which entitles it to 1,323 shares of the new stock, worth \$11 20 per share, advance. This will be a handsome speculation on the part of the State."

Yet how many wise men predicted in the early days of this noble work, that its stock would never pay a dividend!

## The Iron Mines of the Trenton Iron Co.

Mr. Peter Cooper has, we understand, purchased the Andover iron mines, the iron of which is of the best quality for railroads, and 60 acres of land for \$6000. We also understand that this company has it in contemplation to erect furnaces upon this property, and manufacture the pig iron for their extensive rolling mill at Trenton.

## Increase of French Railway Traffic.

It appears that the total traffic receipts from the 1st of January to the 22d June, 1847, on the Paris and Orleans, amount to 4,575,456l.; corresponding period of 1846, 3,905,574l.; increase, 17.1 per cent. The traffic receipts on the Paris and Rouen from 1st January to 19th June, 1847, amount to 4,254,882l.; corresponding period of 1846, 3,532,193l.; increase, 20.4 per cent. This great increase is the more remarkable as these lines have been opened for a period of four years. The amount of traffic since 1844 on these railways has increased above 60 per cent. The returns on the Northern line are about the same rate per mile as compared with those on the above lines at a corresponding period after their opening. These facts should have their full weight with the French government, and convince them of

the advantages to be derived from dealing in a liberal manner with such companies as the Paris and Lyons, Lyons and Avignon, and other lines of great importance to the prosperity of France.

It is difficult to tell where the increase of railway receipts is to cease—in densely populated countries.

#### Mexican Gulf Railroad Company.

The following correspondence is copied from the New Orleans Courier. It is quite an important announcement, and we hope it may prove correct.

"We are happy to acquaint our readers, says the Courier, that Mr. G. Musson, now in Europe, has succeeded in disposing of stock in the Mexican Gulf railroad company, to an amount sufficient to defray the expenses of carrying the road to its termination on the shores of the gulf, directly opposite Cat Island. The following letters show that the British steam packets will stop at Cat Island once a month."

ADMIRALTY, June 17, 1847.

I am commanded by my lords commissioners of the Admiralty to acquaint you that their lordships have ordered such a change of routes for the mail packets as will insure a monthly communication direct between England and New Orleans. I am, sir, your very obedient servant,

J. W. B. HAMILTON.

To G. MUSSON, 70 Picadilly.

70 PICADILLY, June 17, 1847.

SIR:—I have received the letter you did me the honor to address me by order of the lords commissioners of the Admiralty, informing me that their lordships had ordered such a change of routes for the mail packets as will insure a monthly communication direct between England and New Orleans.

Will you please to tender to their lordships my sincere thanks for the favor thus conferred on the merchants and traders of New Orleans, and on the Mexican Gulf railway company?

I am, sir, respectfully, your obedient servant,

G. MUSSON.

J. W. B. HAMILTON, Esq., Admiralty.

#### New York Water Works.

The New York express of Tuesday gives the following synopsis of the water commissioners report:

The semi-annual report of the water commissioners has been published by order of the Board of Aldermen. Amount of funds received from the 1st of January to 1st of July, 1847, was \$35,809 85; the amounts paid out for the high bridge, \$19,350; protection walls, \$3,056 77; salaries to engineers, keepers, etc., \$5,327 08; miscellaneous repairs, \$1,688 25; sundries, \$101 99; damage to private property, \$3,199; taxes on aqueduct lands, \$137 59; legal business, \$331; damage to property in the city, \$650;—total, \$33,041 68.

Total sum expended on the work through the agency of the commissioners, since January, 1835, is \$8,698,329 59. The commissioners have urged the contractors to forward the completion of the high bridge as soon as possible. Of the fifteen arches which carry the bridge, eleven of them are complete, and the remaining four in fair progress. Three of the unfinished arches make a span of 80 feet, and the other a span of 50 feet. The total length of the bridge will be 1475 feet, and the parapet walls already up, measure 900 feet. The contractors have promised to complete the work before the close of the present year. The cast iron water pipes for this bridge are to be furnished by Governor Kemble, of the West Point foundry, at \$52 per ton. Chollar, Sarger, & Dunham, of West Troy, were Mr. Kemble's competitors, but they charged \$54 75 per ton for their pipes. The claim of James A.

Munroe, Esq., for damage sustained by himself and family, by the aqueduct's passing near his residence, has been reduced by mutual consent from \$900 to \$650, and been settled.

#### Charges on the Schuylkill Canal and Reading Railroad.

The Pottsville Journal of Saturday last compares the rates of charge per ton on coal on the Schuylkill canal and Reading railroad as follows:

##### RAILROAD.

The charges by railroad on coal to Richmond, for New York and all places reached by canal boats, are per ton,

To Manayunk, cash, 95	Phoenixville, .....	95
" Plymouth " 95	Reading .....	80
" Norristown " 95	Mohrsville .....	60
" Valley Forge " 95	Hamburg .....	40

##### BY CANAL.

To Schuylkill front, toll 54½, freight 75.....	\$1 29½
Manayunk toll, including back toll, 58, ft. 75, 1 33	
Plymouth, toll 54, freight 75.....	1 29
Norristown, toll 53, freight 70.....	1 23
Port Kennedy, do do .....	1 23
Valley Forge, do do .....	1 23
Phoenixville, toll 51, freight 60.....	1 11
Reading, toll 46, freight 50.....	96
Mohrsville, toll 46, freight 40.....	85
Hamburg, toll 32½, freight 35.....	67½

##### DIFFERENCE IN FAVOR OF RAILROAD.

To Richmond per ton, 23	Valley Forge.....	28½
Manayunk .....	Phoenixville.....	16
Plymouth railroad.....	Reading.....	17
Norristown.....	Mohrsville.....	26
Port Kennedy.....	Hamburg.....	37½

\*The railroad company allows a drawback of 20 per cent. from the rates upon all coal carried to New York, Wilmington, etc., where Schuylkill canal boats can run with safety. They also allow 12½ cents per ton for dumpages on all coal that has to be unloaded on their wharves at Richmond.

#### Gun Cotton.—Recent Experiments.

The gun cotton of C. & F. Lennig was tested yesterday, says the Ledger, at Harding's upper ferry, Schuylkill, with rifles, shot guns, and by using it for blasting rocks. About sixty discharges were made with Cardeza's patent rifle, made for firing with gun cotton, Krider's, and guns of other makers. The principal distance was at the distance of ninety-six yards, and the amount of cotton used in shooting, from three to seven grains. The gentlemen firing were good marksmen, and the result satisfactory. The blasting was done in hard Gneiss rock—the drill hole three feet nine inches deep, two inches in width, and the amount of cotton used five ounces. The explosion cracked off a mass of about ten feet in width, twelve feet in length, and ten feet in depth.

The experiments were conducted under the supervision of Professor Walter R. Johnson and Mr. Smith, committee of the Franklin Institute, and W. J. L. Kinderlin, Esq., editor of the Stadt Post. The result of the experiments and the conclusion of the committee and spectators were these: that gun cotton is superior to gunpowder for sporting purposes in its superior cleanliness, forty discharges not fouling a gun as much as one firing when loaded with gunpowder; in its entire freedom from smoke, which often prevents a second shot with a double barrelled gun, and by the absence of recoil which frequently disturbs the aim for a second shot; in the quantity necessary for a load, being from four to eleven times stronger than gunpowder; and in its cheapness, being but one half the price of powder. The only drawback to its entire usefulness is, that it explodes so quickly that in some instances portions of it are driven from the gun unignited, and part of the explosive force is lost. Inquiry is now

turned to this matter, and we may suppose this defect will soon be remedied, and its entire explosive force brought into play. As an evidence of its swift ignition, we may mention that portions of it were several times placed loose upon gunpowder and fired, the combustion was so rapid, that although the entire mass of cotton exploded, the powder did not catch. For mining purposes it was universally conceded to be superior to powder—in its force and projectile force, and in the absence of smoke, which in mining with gunpowder sometimes prevents the resumption of labor for half an hour after the blast—with cotton not a minute is necessary. It may be conveniently used also for sloping and overhead blasts in holes which it would be impossible to introduce powder.

These experiments are certainly very satisfactory, and establish the reputation of the article prepared by the Messrs. Lennig; and also the fact that it is much more powerful than powder. It must also be admitted that it is a much more dangerous article to handle than powder, and therefore requires a proportionately greater degree of care in its use.

#### Baltimore and Ohio Railroad.

At a meeting of the directors of the Baltimore and Ohio Railroad Company, held at their office in Baltimore, on Friday, 16th of July, the following report was made to the committee on the extension of the road to the Ohio river, and adopted by a vote of 17 yeas to 5 nays:

The committee appointed by the president, under the authority of the Board, at their stated meeting on the 4th of April last, to confer with the authorities of the city of Wheeling, respecting modifications of the recent law of Virginia, relative to the right of way through the State, passed the 6th day of March, 1847.

##### REPORT.

That they promptly and diligently engaged in the duty confided to them. They proceeded to Wheeling, in company with the president, on the 29th of April, and while there had several conferences with a committee on the part of that city, and were also met at that place by several eminent gentlemen from Columbus, Zanesville, Steubenville, and St. Clairsville, in the State of Ohio, representing important sections of that State, having a deep interest and taking a lively concern in the extension of the Baltimore and Ohio railroad to the Ohio river, and who were deputed to make known the views and wishes of the people of the State represented by them as to the terminus on the Ohio river that would most certainly ensure the western connections with Zanesville, Columbus, and Cincinnati, and attract to the road the trade and travel from these points and the country connected with them.

During their conferences at Wheeling, it was discovered that, previously to concluding any arrangement upon the subject of their mission, it would be necessary to direct particular examinations of the several routes authorized by the present law to be made by the chief engineer of the company; and returning to Baltimore on the 7th of May, they despatched Mr. Latrobe upon that duty at as early a day as his engagements would permit him to be absent from the office. He proceeded to make the necessary examinations, and returned to this city on or about



the 26th of June, and immediately afterwards the committee on the part of Wheeling came to Baltimore and resumed the negotiations in which we had been previously engaged.

The examination of Mr. Latrobe, as far as it could be done without instrumental surveys, demonstrated to the satisfaction of the committee, that the cheapest route to *Wheeling*, through the State of Virginia, was that which proceeded by the ravine of *Fish* creek to the mouth of that stream on the Ohio, and thence by the banks of the Ohio to the city of *Wheeling*. According to his examinations, the route by the mouth of *Fish* creek proved to be less expensive to construct, maintain and work, than the route prescribed by the acts of 1844, 5, and 6, and rejected by the stockholders, by \$514,195, and cheaper than the route by *Grave* creek, referred to in the present law, by \$276,213—thus placing it at the option of *Wheeling*, by waiving her right to pay the difference in the expense of the second and last routes to permit the road to be constructed to that city by the mouth of *Fish* creek, only sixteen miles higher up the river than the mouth of *Fishing* creek, and twenty-eight miles below the city of *Wheeling*.

Your committee deemed it their duty, and as important to the interests of the stockholders, to insist upon the option of adopting that route, and of touching the Ohio river at the mouth of *Fish* creek, if they desired to do so, and they finally concluded an arrangement with the committee of the city of *Wheeling*, by which that right or option has been secured, and by which the city of *Wheeling*, moreover, agrees to subscribe to the stock of the company the sum of \$500,000 in money, or in bonds guaranteed by the State of Virginia, and also to provide the company, free of expense, a depot in the city, with the right of way through the city limits, and the use of the locomotive engines through the streets.

The arrangement thus concluded, is now submitted with this report; it has been already duly ratified by the authorities of *Wheeling*, and if the law be accepted by the stockholders of this company, will be binding upon that city. The committee are of opinion that by this arrangement and according to the present law, the company may secure all the substantial advantages they ever expected from a terminus of their road at a southern point on the Ohio, and at a cost not greater than those advantages would fully warrant.

The committee deem it proper to add, that unless the obligation it imposes of constructing the road to *Wheeling* could be deemed objectionable, which in the present posture of their affairs, and for the considerations they will hereafter advert to, they cannot admit, the present law of Virginia grants the right of way upon as favorable terms as any they have heretofore obtained, or could expect hereafter to obtain.

It does not require the company to adopt the route or any objectionable part of it, heretofore prescribed by the act of 1844-5 and 1845-6, and rejected by the stockholders, but gives them the option of at least three other

and different routes, considerably cheaper, and of seeking a terminus of their road at the mouth of *Fish* creek, only 16 miles higher up than the point heretofore preferred as the southern terminus on the Ohio. It releases them from all restrictions upon their tolls, in competition with the canal or other rival works, and in requiring the establishment of a depot at the canal basin on the *Shenandoah* and at *Cumberland*, it does little more than repeat the obligation to which the company is already subjected by the laws of Maryland, and which, on the *Shenandoah*, it has actually complied with. It does not impose upon the company any obligation to complete all parts of its road simultaneously; on the contrary, it imposes that obligation only in respect to the portion of the road west of the *Monongahela* river, and allows the privilege of resting at that river, or at any point east of it, during the term prescribed by the act. The committee are free to express it as their opinion, however, that if the company accept the law, they should not contemplate the necessity of using this privilege, but should, on the contrary, desire to press the work forward with all possible despatch, to its terminus or termini on the Ohio river. The committee, moreover, deem it important to add that, while the law in one of its sections guards against an implied renewal of the contract by the State of Virginia, to part of the construction of the road from *Harper's* ferry to *Cumberland*, it leaves the contribution of 25ths of the cost of the extended road within the State, to the operation of the general laws and other policy of Virginia.

The committee have some reason to believe that this was not unintentional, and are not without much reliance upon the assurances and cordial co-operation of the interests of *Wheeling*, to procure from the State the usual proportion of 25ths of the cost of the extended road from the Maryland State line to that city. The committee conclude this part of their observations by stating that the agreement now concluded, obtains for the company all the advantages and concessions which the Board, as explained in the address of the president to the stockholders at their meeting on the 5th of April last, contemplated to insist upon.

If, then, the substantial advantages ever contemplated from a connection of the road at a southern point on the Ohio, may be expected from the termini at the mouth of *Fish* creek and at *Wheeling*, the company could not have demanded greater privileges in its extension and future working than this law confers.

That these advantages may be realized from the termini secured by the law, and the arrangement with *Wheeling*, the committee are equally well persuaded.

In prosecuting the road to the Ohio river, the committee have never doubted, that it was not more the primary intention and object of the company, than essential to the interests of the stockholders, and the trade and prosperity of this city, that it should terminate at such point south on the river as would most certainly secure the trade and

travel passing up the river, and, by early and favorable connections with the western improvements, avoid the hazard of rivalry and competition with our northern cities, attract the trade and travel of the great west upon their road, and bring them to Baltimore.

In the pursuit of these objects, it would be far more advisable to complete their work even at a much greater cost, to a point at which they would reach the trade and travel free from all competition, than to expend a comparatively less sum upon a work which would annually expose them to the loss of the principal advantages of the enterprise, and oblige them to maintain a competition, upon unequal terms, with formidable rivals.

The uniform history of the company shows that its aim has been to go far enough south on the Ohio to arrest the trade and travel passing up the river, to connect certainly and advantageously with the progressive improvements in the west, and to escape from the competitions with *New York* and *Philadelphia*. It would, therefore, be a departure from the uniform purpose of the company, and from the settled public opinion in this community for twenty years, if, neglecting this obvious policy and forecast, we could be content to expend millions of our capital, to attract the travel and trade from southern points at which they could be obtained without competition, and draw them to another point farther north, at which we would be compelled to engage in a close and powerful rivalry for a small share of either.

That point which would afford the greatest security for the river trade, and promises the earliest and surest connections with the western improvements, is the one to which the company should direct its attention and resources.

If not from the origin of the enterprise, as early, certainly, as 1835, the city of *Wheeling* had been preferred, and accordingly selected, by common consent, as the most suitable point to obtain those objects; and it is worthy of observation, that this preference was adopted and avowed when the principal dependence both for trade and travel was upon the river navigation and the National road, with little expectation of such an extension of railroad as has been since projected through the State of Ohio.

On these grounds *Wheeling* had been conclusively adopted by the terminus of the main stem of the road, even subject to the embarrassment and additional expense of making a branch to *Pittsburg*, as a bonus to the State of Pennsylvania for the privilege of passing through the territory of that State to the preferred southern point.

The application of the company to the Legislature of this State and to the City Council, for an increase of their subscription to the amount of \$3,000,000 each, represented *Wheeling* as the terminus of the main stem, and *Pittsburg* as a branch only, which could not be avoided: and the contributions, both on the part of the State and city, were made in the expectation that the road would be prosecuted, if practicable, in pursuance of that design. The same purpose was mo-

emphatically declared by the company, and affirmed by the Virginia Legislature in 1838, limiting in express terms the terminus of the main stem at Wheeling, and until the year 1843, the company never wavered or faltered in its purpose, or had reason to doubt the feasibility of its object. In that year, the law of Pennsylvania granting the use of its territory, expired, and that State refusing to renew the grant upon terms which the company could accept, and under an impression that there was no approach to the river at Wheeling without passing through Pennsylvania, the company was obliged to turn their attention to a point even farther south, and accordingly applied to the Legislature of Virginia for permission to select a terminus at any point not below the mouth of the Little Kanawha.

The first application for this purpose failed, chiefly for the want of time during a short session of the Legislature; and before the commencement of the following session, the engineer of *Wheeling* discovered a route to that city by which it was insisted that the road could be constructed without passing through the State of Pennsylvania; and that route, by a law of two successive sessions of the Virginia Legislature, was prescribed as the only condition upon which the right of way through that state would be renewed.

Each of these laws was rejected by the stockholders, and it being well understood that the objections to the route they prescribed were insuperable, the recent act of that State relaxed the conditions of the previous laws, and allowed the company an enlarged option in the selection of their route. In all the recent efforts of the company, therefore, to obtain the right of terminating their road lower down the Ohio, the motive did not so much proceed from an objection to the suitability and advantages of Wheeling as a terminus, as the route by which they were required to construct the road to that city.

It is not to be denied that when compelled, as already stated, to turn their attention to another terminus than Wheeling, the western improvements by railroad, which had been projected in the interim formed a necessary element in the calculations of the company; and they were, moreover, led to believe by the reconnoissances and reports of their engineer, that a more southern point offered even greater advantages as a terminus of the road, than the point previously preferred, and it must be stated that, so far as can be inferred from those reconnoissances and reports, the mouth of Fishing Creek or Parkersburg, was deemed by the engineer as the point better than any other adapted to the objects of the company. It may be admitted that this preference was in some respects well founded, though the committee do not hesitate to express it as their opinion, that subsequent information and a more thorough investigation of the subject, have shown that it was not entitled to the force that had been generally conceded to it.

The preference of the mouth of Fishing creek, as a terminus of the main stem, was justified by the saving of distance, in refer-

ence to the western trade, compared with any other point on the river from the mouth of the Little Kanawha to Pittsburg inclusive, except the mouth of *Fish* creek; by the cheapness of construction over each of the other routes with the same exception, and by the greater facilities which, it was alleged, it afforded in forming connections with the projected improvements, on both lines, on the west side of the Ohio river. It is to be here observed that, both in cost and in distance, east of the Ohio, the road to the mouth of *Fish* creek would be the same as to the mouth of *Fishing* creek. It was particularly urged that from the mouth of *Fishing* creek connections with the Ohio works upon the central line through *Zanesville*, *Columbus*, and *Xenia*, to Cincinnati, could be formed with greater advantage than from any other point; and that with the southern line of improvements through *Marietta*, *Athens*, and *Chillicothe*, to Cincinnati, it was the only point, excepting Parkersburg, from which a connection could probably be made.

Without these advantages, *Fishing* creek would be entitled to no preference over any other point from which they might be obtained. Upon the ground of its superiority in these respects, real or supposed, the preference for *Fishing* creek has rested, and upon the same ground the stockholders, at their meeting on the 22d day of February last, declared their willingness and determination to accept a law which should oblige them to construct their road to *Wheeling*, if they could be allowed the privilege of constructing it to that city by the way of *Fishing* creek.

The committee, therefore, think, that if, from better investigation and more recent information, it appears that the same and even greater advantages which were expected from touching the river at the mouth of *Fishing* creek can be realized from the construction of the road, at no greater cost, to *Wheeling*, by the mouth of *Fish* creek, sixteen miles higher up, the present law is equally entitled to their acceptance.

It may be conceded, that the distance by the mouth of *Fishing* creek, with reference to the trade with Cincinnati would be less than by other points on the river, excepting Parkersburg north or south; and that the cost of constructing the road to that point would be less than to any other southern point excepting to the mouth of *Fish* creek; but the committee apprehended that neither distance nor cost, unless they are sufficiently great to obstruct the business of the road, or defeat the ability of the company to make the work, are points most deserving of consideration. If the cost be within the ability of the company, and the terminus such as to command the full amount of trade and travel, the elongation of the distance, so far from forming an objection, becomes a positive advantage, by increasing the profit upon a lengthened line of road.

Nor must it be forgotten that the object of extending the railroad to the Ohio river is not for the mere trade and travel of the point to which it may be extended; that is altogether a subordinate consideration.

The object of reaching the Ohio is to get within the proximity of the trade and travel of the great west beyond that river, and the point from which these can be most certainly secured is that to which the road should be carried.

The question, therefore, the committee repeat, is from what point the trade and travel of the river can be most certainly commanded, and with which the improvement west of the river could most advantageously connect.

It is to this consideration, and to the information they have acquired in relation to it that the committee would particularly invite the attention of the Board. Their investigation has developed facts and information which had not previously received sufficient attention, and has led the committee to the conclusion not only that the cost of the construction of the road to Wheeling will be little, if any, more than to the mouth of *Fishing* creek (and considerably less than to Parkersburg) the uniformly preferred routes, but that the advantages of connection with both lines of works in Ohio will be even greater and more certain of accomplishment, from the route authorized by the agreement with the city of Wheeling, than from a terminus at the mouth of *Fishing* creek.

There are two great lines on which the public works through the State of Ohio, intended to connect with St. Louis to the west, and north with the Lake country, and projected to the Ohio river.

One is called the Southern line, extending through *Chillicothe*, *Athens*, and *Marietta*, and the other is denominated the "Great Central line" leading from Cincinnati through *Xenia* or *Springfield*, *Columbus*, and *Zanesville*; and a terminus at *Fishing* creek was originally preferred as being equally suited to a connection with the works on both of these lines.

It may be conceded, that from that point a connection could be formed both at somewhat less cost and distance with the southern line than from Wheeling, or even the mouth of the *Fish* creek; and it is equally true that from Parkersburg the connection could be formed with even greater advantage than from *Fishing* creek, or any other point on the river. It is also true, however, that a connection with the southern line could be formed at little more expense, and with scarcely less advantage, from the mouth of *Fish* creek than from that of *Fishing* creek.

*Fish* creek being only sixteen miles higher up the river than *Fishing* creek, and the elongation of a road over that distance costing not exceeding \$250,000, it is not to be doubted that the cities and counties interested in the southern line, would be quite ready to incur that expense in extending their works to the upper point. It may therefore be assumed as certain, that in procuring the option of going to the mouth of *Fish* creek, the company has as effectually secured an early connection with the southern line of improvements in Ohio as they would have done from *Fishing* creek, and that in this respect the object of the stockholders, as declared at their meeting on the 22d of February last, will be



fully accomplished. And it is perfectly certain, that with a point north of Wheeling, and even of Fishing creek, a connection with the southern line of improvements, if a northern terminus were adopted, would be lost to the road altogether.

The committee, however, consider it even more important to state, that their recent investigations have shown that with the great central line of the Ohio improvements from Cincinnati through Columbus and Zanesville, already in a more advanced state, and with greater means of completion, a connection could not be advantageously made from the mouth of Fishing creek, and would be more promptly and certainly formed at Wheeling than at any other point north or south of the Ohio river.

The committee cannot doubt that this consideration must give a new and important aspect to the subject, and that it should have a controlling influence over the future decisions of the company.

On this ground, in reference to the central line of the Ohio improvements, the advantages of a terminus at Wheeling would be superior to those of Fishing creek; and, combined with the right of touching at the mouth of Fishing creek, the route authorized by the agreement with Wheeling would not be inferior to any other on the Ohio river.

The committee have already alluded to their conferences, while at Wheeling, with representatives attending from several parts of the State of Ohio, and they have now to add that, during their recent conference in this city, they were attended by Mr. Alfred Kelly as the representative from the city of Columbus.

Mr. Kelly's long and eminent connection with the construction and management of the public works of Ohio, is well known in this community; no man has been longer or more usefully engaged in those important improvements, or is more intimately acquainted with the topography and resources of that great State. He is at present at the head of one of the works upon the Central line, passing through Columbus, and designed to form part of the great west and east line from St. Louis, and was selected by the authorities of Columbus to attend the conferences between this company and Wheeling, and to speak authoritatively of those points on the Ohio river with which it would be consistent with the ability and interests of the Ohio improvements to connect.

A summary of Mr. Kelly's views upon these points is substantially embodied in two letters to the President, dated 2d and 5th of July instant, which the committee submit to the Board with this report, and which will be found remarkably to corroborate the statements both as to comparative routes and distances to the several points on the river, and in reference to the lake trade presented by the President to the stockholders of this company in his address to the stockholders of the 5th of April last.

They have also received the official proceedings of a convention of the several companies chartered to continue the line of rail-

ways from Columbus to the Ohio river, held at Zanesville on the 1st day of the present month, which they beg leave to submit with this report, as not only explanatory of the views and interests of those companies, but as illustrative of the resources of the State of Ohio, and as containing in the preamble and report of the committee, some interesting and valuable information of the utmost importance to the future course of this company. Besides these, the President and the committee have received various unofficial communications from numerous individuals of the first eminence and best practicable information, all concurring in the views expressed in the papers herewith submitted.

From all these sources, the information is uniform that, in conformity with the established policy and interests of the State of Ohio, Wheeling is a preferable point with which to connect the public works than any other north or south on the Ohio—the distance from Columbus to Pittsburg being more than seventy miles, and from Zanesville at least that number of miles greater than to Wheeling and the country through which a line of communication with the former would pass, offering fewer advantages, would seem to render a connection by the Central line, with Pittsburg, a matter of necessity, or dependent upon an amount of trade too great to be accommodated by other works. It would appear, also, that if the distance from Columbus and Zanesville to the mouth of Fishing creek be not greater, the intervening country, besides being unproductive and offering comparatively small means for the making or employment of a railroad, is not favorable to the construction of such a work, and these objections we deemed so strong as to authorize a distinct intimation that the termination of the Baltimore and Ohio railroad as low down as Fishing creek, might create the necessity of more northern lines, which, if a terminus at Wheeling, or near it, were adopted, would not be apprehended.

Mr. Kelly's letter shows that a continuous line of railway from Cincinnati to Columbus, a distance of 130 miles, will be soon completed, leaving only 155 miles to extend it to the Ohio.

The committee would add, that all the assurances and representations they have received, lead them to the conclusion that the counties of Ohio through which the line, in connection with a terminus opposite Wheeling would pass, are among the wealthiest in that State, and that, if this company determine to construct their road to Wheeling, and engage in the work earnestly and in good faith, the Ohio improvements from Columbus to Wheeling, will be completed as soon as this road can be extended to the river.

To be continued.

#### Susquehanna Railroad. Extension from York to Harrisburg.

Continued from page 471.

Some have asserted that nature has raised insurmountable barriers across the route of the Central road. The difficulties have been much exaggerated. From the reports of intelligent engineers, it appears that, by mak-

ing two tunnels of no extraordinary length, the mountains may be passed, and the whole road constructed, so that the maximum grade would never be more than 45 feet to the mile.

We have stated the estimated cost of the work, and the amount of stock already subscribed;—can the balance of the stock be taken? The committee have been assured that it will be; and they see no reason to doubt it. The distance from Cumberland to Pittsburg, by the southern or Savage river route of Baltimore and Ohio railroad (which seems now to be settled upon) is 178 miles, and the estimated cost \$4,383,070. The distance from Harrisburg to Pittsburg by the Central road is 228 miles, and the estimated cost \$7,000,000:—a difference of only 50 miles of distance, and \$2,616,030 of expense in the two undertakings. If we compare the population and wealth of the two States, it would seem that extension from Harrisburg is a much easier undertaking for Pennsylvania, than that from Cumberland is for Maryland. If Baltimore extends her road to Pittsburg, who can doubt for a moment, that Philadelphia will then (if she should delay until then) put forth her utmost energies to effect the completion of her central road? Can it be hoped that she will look on with a calm indifference while a rival city snatches away the rich treasures of the west,—the golden fleece which she herself had already spent so much toil and treasure to secure? It may be said that Philadelphia has already a canal communication with Pittsburg, which has cost an immense outlay, and that she will not be willing to expend millions more in making a railroad to the same point. Let it be remembered that the march of improvement is onward with daily increasing speed. Time is now emphatically regained as money. Merchants of different cities buy and sell by telegraph! The canal boat drawn by the sluggish mule can no longer successfully compete with the lightning speed of the steam driven car! The daily increasing passenger travel from the populous west would alone induce Philadelphia to undertake the construction of the Central road. Should Baltimore extend her road to Pittsburg, the necessity for hastening the completion of the Central road would be increased.

When the Central road is finished, the passenger travel between Baltimore and the west by way of the York and Cumberland railroad would certainly be very great. It would possess an advantage over the Baltimore and Ohio railroad in respect to relative distances, which would be as follows:

Ohio railroad, via Cumberland and the mouth of Savage river (southern route)	356 miles.
From Baltimore to Pittsburg by way of the York and Cumberland railroad, and Central road of Pennsylvania	316 "
From Philadelphia to Pittsburg by Central road	334 "

It will thus be seen that, by the Harrisburg route, Baltimore would be 40 miles nearer to Pittsburg than by the Cumberland and Savage river route. She would also be 18½ miles nearer than Philadelphia. If the northern and Castleman's river route be

adopted by the Baltimore and Ohio railroad company, the difference in distance of the two routes from Baltimore would not be so great; but it would still be in favor of the York and Harrisburg route. These advantages could not fail to attract a large portion of western trade and travel to this road.

The committee do not wish to be understood as opposing a connexion between Baltimore and Pittsburg by means of the Baltimore and Ohio railroad. As Baltimoreans, they earnestly desire to see that great work extended to the banks of the Ohio river, its only profitable terminus. Whether Pittsburg, or a more southern point, should be chosen for the connexion, they leave to be determined by those having the management of the affairs of that corporation. If the connexion be made at Pittsburg, it would not necessarily follow that the interests of that work and of the York and Cumberland road would be conflicting. If we regard the rapid and daily increase of the western states in wealth and population, and estimate from their past progress what will be their future greatness, we will find that, in a few years, the business of that wonderful region will furnish an amount of freight and travel sufficient to give constant and profitable employment to both works. In 1810 the population of the Mississippi valley was 1,064,703. In 1840 it had reached 5,335,578. By the same ratio of increase, in 1870 (within twenty-three years,) it will be 26,000,000! Some idea may be formed of the value of the agricultural products of this region from the estimates furnished in the report of the commissioner of patents for the year 1845, by which it appears that, besides other staples, the corn crop alone for that year amounted to 273,384,000 bushels, and the wheat crop to 55,384,000 bushels. A considerable amount of these products is sent annually to the Atlantic cities for foreign exportation. Increase of facilities produces an increase of trade. If greater facilities of internal communication were offered, and the expenses of transportation thereby lessened, how much greater an amount of western productions would annually pass the Alleghenies: And which of all the cities of the sea board is more advantageously located for the western trade than Baltimore? Nature has done much for her. It only remains for her citizens to appreciate her advantages and to improve them. Human art and enterprise may perfect what nature has done; and the monumental city may secure to herself the larger portion of the trade of a region able at all times, from its surplus products, to supply the starving millions of Europe with food!

The committee, therefore, think that both connexions with the Ohio might very properly be made. The construction of the York and Cumberland road would cost a comparatively small sum. This can be spared from Maryland and Pennsylvania capital, and an abundance of means left for the completion of the Baltimore and Ohio railroad.

In conclusion of this part of their report, the committee would recapitulate the follow-

ing important items from which the profits of this road might be expected to arise:

1. *The Produce Trade of Western and Southern Pennsylvania.*—The amount of this trade would be large, and its nearest market Baltimore.

2. *The Lumber Trade.*—This road would bring Baltimore in direct communication with the pine forests of the Upper Susquehanna, and with Middletown, the greatest lumber market in the southern or middle states.

3. *The Iron and Coal Trade.*—The anthracite and bituminous coal basins of Dauphin county would soon supply this road with a trade which of itself would render it a profitable investment. From the great difference in the cost of fuel upon the two routes, coal could be carried at much less expense upon this than upon the Reading railroad.

4. *The Passenger Travel in Western Pennsylvania.* This road would furnish the shortest and cheapest route to Washington for three-fourths of the counties of Pennsylvania, and to many of the southern counties of New York, containing together a population amounting to two millions. Passengers could leave Harrisburg at 4 o'clock in the morning, reach Baltimore in time for breakfast, and thence proceed to Washington, where they could arrive by 11 o'clock.

5. *The Freight and Passenger Travel of the West.*—When the Central road is finished this must be very great. This road will possess advantages which will enable it to compete successfully for this trade with any other work.

### III.—ADVANTAGES TO RESULT TO BALTIMORE AND MARYLAND FROM ITS CONSTRUCTION.

The Baltimore and Susquehanna railroad extends from Baltimore to the Maryland line, and thence, by means of the York and Maryland line railroad, to the borough of York, a distance of 58 miles. In this work the State of Maryland has invested \$1,884,054 25—besides large arrearages of interest due from the company, and Baltimore city \$850,000. Nearly every ton of freight and every passenger passing over the York and Cumberland railroad, would also pass over this road. The former would be about 29 miles in length. The trade of the York and Cumberland railroad would thus swell the receipts of the Baltimore and Susquehanna road, and would soon render profitable the large investments of our State in that work—and eventually enable the company to make dividends to the city and private stockholders. Another result even more important would be the creation of a new and valuable trade for our city, affording employment for her capital, a field for the enterprise of her merchants, and a strong and lasting impetus to her growth and prosperity.

Nor would the advantages arising from this work result solely to our own State. Pennsylvania is equally interested in its completion. By this means, the citizens of many of her congressional districts will be benefited by having a nearer and cheaper route to the National Capitol and other southern

cities. Thousands of the farmers of her interior counties would find their lands increased in value from the increased convenience for sending their crops to the Atlantic sea board. Coal fields and mineral lands now neglected and valueless, would be opened and give wealth to their possessors. Thus, while no part of the State would be injured, thousands of her citizens would receive important benefits from this proposed connexion with our city—a work which would create business for itself, by producing a new trade and increased travel.

The committee therefore think, that the agricultural interests of Pennsylvania and the commercial interests of Baltimore, would alike be promoted by the construction of the York and Cumberland railroad. They also believe that it would be a profitable investment for capitalists.

The committee have thus endeavored to discharge the duty imposed upon them. It will be for the Board to take such action upon the subject of this report as to its members may seem proper.

COLEMAN YELLOT,  
R. M. MAGRAW,  
WILLIAM P. POWDER, } Committee.

The above report was read at a meeting of the Board of Directors of the Baltimore and Susquehanna railroad company, on the 17th of June, 1847: and, on motion was adopted and ordered to be printed.

**Lehigh Coal and Navigation Company.**  
*Report of the Board of Managers of the Lehigh Coal and Navigation Company, to the Stockholders.—May 4, 1847.*

At an election held May 4, 1847, the following named persons were chosen officers of the Lehigh Coal and Navigation Company, for the ensuing year:

*President*—James Cox.

*Managers*—John Cox, Josiah White, Erskine Hazard, Henry Cope, Caleb Cope, George Abbott, Joseph Fisher, John Farnum, Henry J. Boller, John Brock.

*Treasurer*—Otis Ammidon.

*Secretary*—Edwin Walter.

### REPORT.

In compliance with the requirements of law, and in the performance of a duty, which, from the greatly improved condition of the company's affairs, is discharged with even more than the usual alacrity, the Board of Managers have the pleasure to submit to the Stockholders, the following report "on the situation of the concerns committed to their charge."

Shipments of coal for the year 1846 began on the 1st of April of that year; but, in consequence of the injury to the Delaware Division from high water, deliveries were, until the 24th of that month, restricted to the line of the Lehigh.

From the commencement until the close, on the 10th of December last, of operations on the company's canal, there was no interruption, from any cause whatever to the navigation.

Owing to causes, some of which could neither be foreseen nor provided against, and all of which were, more or less, beyond the



control of the managers, the production of coal from the coal mines fell short, not merely of the anticipations indulged in at the opening of the season, but of the quantity sent to market during the preceding year.

This deficiency was, however, more than compensated by the increase from the Room Run mines.

The shipments for the year were as follows:

	Tons.
From the old mines of the company.....	165,011
" Room Run ".....	109,652
Making a total from the Co.'s mines of....	274,663
From the Beaver Meadow ".....	85,948
" Hazleton ".....	98,541
" Buck Mountain ".....	46,116
" Summit Coal ".....	11,868
" Wyoming Valley via W. Haven. ....	5,866

Forming an aggregate of coal shipped on the Lehigh canal of.....523,002

And exhibiting an increase of 93,510 tons, or about 21½ per cent. on the shipments of the preceding year.

In addition to the above, there were sent to market during the year 1846, from the company's Tamaqua mines, via the Little Schuylkill railroad, 10,150 tons of coal. The whole quantity taken from them since they were opened is 26,839 tons.

These mines are now leased to parties, and upon terms that promise a large annual increase.

The quantity of lumber transported through the season, reached twenty-seven millions of feet, board measure, showing an excess of five millions of feet over the shipments for 1845.

The quantity and descriptions of freight, carried on the canal during the year 1846, and upon which the tolls amounted to \$250,849 41, are exhibited by the following statement:

## LIST OF FREIGHT, 1846.

	ASCENDING. DESCENDING.		TOTAL.	
	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.
Charcoal.....		1,031 16		1,031 16
Coal.....	143 0	523,002 5	523,144 14	
Grain.....	744 17	1,664 11	2,409 8	
Flour.....	873 6	6,559 00	7,432 6	
Salt.....	745 1		745 1	
Salt fish, beef & pk.	544 18	67 8	612 6	
Other provisions..	107 4	17 12	124 16	
Beer, porter & cider	18 5		18 5	
Whiskey.....	113 19	572 2	686 1	
Hay and straw...	256 7	1 00	257 7	
Lumber.....	841 15	26,793 1	27,634 16	
Cordwood.....	124 2	1,507 10	1,630 12	
Bricks.....	1,775 5		1,775 5	
Slate.....	2 00	270 1	272 1	
Lime & limestone	5,904 12	12,984 00	18,888 12	
Other stone & plaster	2,398 17	1,314 1	3,712 18	
Iron.....	2,342 1	18,888 18	21,230 19	
Iron ore.....	17,011 13	10,393 2	27,404 15	
Pitch, tar, rosin, etc	28 18		28 18	
Merchandise.....	3,885 19	409 8	4,355 7	
	37,861 8	605,534 15	643,396 3	

As has been the case for several years past the coal from the company's mines, except the reserve to meet the demands of holders of the mortgage loan, was disposed of, and payment received as it reached market.

The navigation, both of the upper and of the lower section, is now in a condition as regards repairs, efficiency and security, better than it has been at any former period.

This desirable state of the line has been

effected by unremitting attention to graving the dams, and by making such improvements for the sake of increased strength and stability, as experience dictated, and the means at the disposal of the managers warranted.

A portion of the work done may fairly be considered as a mere carrying out of the original design; the expense of which might, therefore, with propriety, have been carried to the account of construction; but, from a desire not to swell the cost of the work, it has been deemed expedient to charge the whole to profit and loss.

From the statement this day submitted, it is seen that a beginning has been made in the transportation of coal over the Lehigh and Susquehanna railroad; and there is good ground, in preparations made and contracts entered into, for the confident expectation that not merely will there be, during the current season, a large increase in the quantity of coal passing over the road, but that bar iron and lumber, to a considerable amount, will seek a market by this route; while iron ore and merchandize will furnish a return freight.

In fact, the managers are sanguine as to the extent of the business over the road being such, as with the means at their disposal, will justify them in affording for the year 1848, increased facilities for the transportation and shipment of commodities.

The production of coal from the company's mines, including the Old and the Room Run mines, will for the current year, probably not fall short of 350,000 tons; and may, under favorable circumstances, considerably exceed this quantity; while the aggregate shipments of this mineral on the Lehigh will not, it is supposed, be to a less amount than 650,000 tons.

The improvements, begun within the last few years, and forming part of a connected, extended, and as it is believed, of a well devised system for the steady and progressive enlargement of the company's business, are regularly carried forward to completion; but it is not expected that the benefit, to arise from them, will begin to be fully realized prior to the year 1848. Some of the tunnels will, however, contribute materially to the present season's supply of coal.

The Return Track, under all the disadvantages and disappointments usually attendant upon the first essay of a new work, has proved its capabilities; and will doubtless afford, during the present year, facilities which could in no other way have been so well or so cheaply secured.

In the meantime, the outlay for tunnels, slopes, uncoverings, roads, engines, machinery, dwellings, boats and cars, has unavoidably been very large; and, although the company's property has been proportionably improved by the expenditure, yet it has necessarily abstracted from the means applicable to other purposes.

Notwithstanding this heavy outlay during the year 1846, the managers have felt themselves warranted, since the commencement of the present year, in directing the resumption of the payment, *in cash*, of the interest on the mortgage loan; and have also made a begin-

ning of the discharge, *in coal*, of 25 per cent. of the arrears of interest on the common loan.

These measures, so important for the gradual restoration of the credit of the company, although not carried out at a date so early as was desired, were yet adopted at the very earliest period deemed prudent, or even practicable. Preliminary to their adoption, and within the year 1846, there had been extinguished \$161,000 of debt preferred under the deed of trust; much of it bearing the character of a first lien upon the company's property.

Since the date of the last report, three large anthracite furnaces have been added to those at that time upon the line of the company's works, and there is a prospect that the number will soon be still further increased.

Much is expected from the recent change in the organization of the Morris canal company.

Communicating, as this canal does, at one extremity, with the city of New York, and at the other with the Lehigh canal, at Easton; thus bringing Mauch Chunk within 150 miles of the largest market for anthracite on the Atlantic border; and with an undoubted and an abundant supply of water; all that is wanted, in order to command for the canal a very large through trade, is such an improvement of the planes, and of their machinery, as shall enable the coal scows of the Lehigh to pass, without detaching the sections of which those scows are composed.

This improvement, there is reason to hope, may be effected in time to accommodate the business of 1848.

Even in its present imperfect condition, the line of canal afforded, during the year 1846, a market for more than 50,000 tons of coal; a tonnage, however, which would prove to be but a tythe of what would pass over the canal, were the improvements, of which it is unquestionably susceptible, carried out.

There is ground, too, for the confident expectation, that, during the present year, the long delayed connexion between the Delaware division and the navigable feeder of the Delaware and Raritan canal, will be accomplished.

With these augmented facilities for reaching market, the trade of the Lehigh must, in future seasons, experience a very sensible stimulus, and a corresponding enlargement.

If we now pause for a moment, to look back upon the difficulties with which the company has had to contend—if we advert to the imminent perils to which it has been exposed—if we contrast its situation, almost desperate, and by many despaired of, with its present condition of renovated commercial credit, its more than restored navigation, its nearly completed railroad to the teeming valley of the Susquehanna, its vastly improved and enhanced property, and its consequent and constantly growing ability to relieve itself from the mass of indebtedness under which it has so long struggled,—and if we then turn to the contemplation of the augmented market value of all its obligations, and the comparative ease and security of its present position, it will be apparent to all

that the company possesses within itself restorative powers and available resources, to an extent heretofore scarcely suspected, and only now just beginning to be clearly and fully appreciated.

Whatever credit the managers may be considered as fairly entitled to for the altered circumstances of the company, they have, at least, the satisfaction of knowing that they have not been wanting in fidelity to the trust reposed in them; and they enjoy the high gratification derived from the consciousness that, in promoting interests identical with their own, they have contributed something to the relief and to the comforts of the many individuals who have invested their means in the stock and loans of the company.

To the statements of accounts this day submitted to the stockholders, and the most interesting and important of which will, with the approval of this meeting, be appended to the printed copies of the report, reference is made for a condensed exhibit of the results of the past year's business, and for a clear exposition of the financial position of the company at the close of that year.

By order of the Board of managers,  
JAMES COX, President.  
Philadelphia, April 28th, 1847.

From the American Mining Journal and Railroad Gazette.  
**Progress at the Mines on Lake Superior.**

We are again without returns from the several mines on Lake Superior, and again repeat our earnest request to our friends in that quarter, to give us authentic information as to the work and results at their respective mines. The question is constantly put to us, "What news from the mines on Lake Superior?"—and we must confess, as the publishers of a Mining Journal, and with the knowledge, too, that much interesting and valuable information could be easily furnished with a little attention to the subject on the part of those interested, we feel placed in rather an unpleasant position. In the absence of any returns, we have availed ourselves of information kindly furnished us by Captain A. Sherman, a gentleman who has spent a considerable time for the last two or three years in the examination of the mineral region of the country bordering on Lake Superior. Capt. Sherman has visited most of the mines on Point Keeweenaw, since the 1st of May, and at our request has given a minute of the information he obtained from actual observation at the mines he visited, and such information as he received from reliable sources. Some important mines he did not visit, and has given no information respecting them.

**Lac La Belle.**—The work at this mine has been prosecuted with vigor, with a force of from 10 to 15 men. A considerable portion of the labor has been expended in the preparations necessary for the opening of the mine. The quantity of ore raised is, in all, about 400 tons; 50 tons of which are very rich grey sulphuret, estimated to contain from 50 to 70 per cent. of copper. Messrs. Wm. H. Ladd and R. Kernick are erecting smelting works at this mine, which will be in operation by August 15th.

**Bohemian.**—The force employed at this

mine has been much less than at Lac la Belle. The vein is supposed to be a continuation of the Lac la Belle vein. Several tons of ore have been raised of quality similar to Lac la Belle. The prospect at this mine is very flattering.

**Gratiot.**—A very rich vein of grey sulphuret has been recently discovered, of great promise. Thus far, the indications appear better if possible than either the Lac la Belle or Bohemian, both of which are in the immediate vicinity and on the same mineral range. The vein was discovered in May last.

**Eagle Harbor.**—About 15 men have been employed at this mine during the winter. The rock has been excavated along the vein, and from 20 to 30 tons of vein stone of at least 60 per cent. copper, can be taken down without further blasting. A considerable portion of the labor at this mine has been employed in a rigid examination of the several veins upon the mineral location on which this mine is situated. Some of the veins examined are very promising.

**Copper Falls.**—The main shaft is down about 120 feet. An adit is being driven from the level of the water course to intersect the main shaft. This adit is driven along the course of the vein. It is estimated the copper obtained from the vein will more than pay the expense of the adit. The large block of native copper in the shaft has been cut into pieces of from two to three tons each most of which have been raised from the mine. Four shafts have been sunk, and several drifts driven. The amount of vein stone containing copper, and of native copper raised, exceeds 400 tons, estimated to contain an average of 40 per cent. of copper.

**Eagle River.**—But few hands, not exceeding 10, have been employed at this mine during the winter. The labor has been expended mostly in one of the drifts from which a little more than 11 tons of pure native copper had been raised to May 20th. This drift is 120 feet below the bed of Eagle river, and runs from the shaft in which the boulder of pure native silver, weighing 6 lbs. 10 ozs. avoidupois, was found. This drift is along a fissure or rather a series of fissures in the rock, which are filled with gravel similar to that found in the bed of the stream above. In this gravel, boulders and pebbles of native copper are found, shaped like the rock pebbles in many instances, and varying in size from a pea to a pumpkin. Pebbles of pure native silver are also found in this gravel. The 11 tons of copper named above consist of these copper boulders and pebbles, and is perfectly pure copper.

**North Western.**—The force at this mine during the winter was small, and a considerable portion of it was expended in erecting buildings, and other necessary preparations for mining. The main shaft is down to a considerable depth, and a large quantity of vein stone, containing native copper, had been raised to May 30th. The quantity of copper was estimated at over 10 tons. The prospect at this mine is very promising.

**Cliff Mine.**—The main shaft is down 200

feet upon the vein. The lode at the bottom of the shaft is increasing in width. The vein is about four feet wide, and increasing in richness. Drifts have been driven from the main shaft in the direction of the vein. In one of these drifts a sheet of native copper has been found extending 38 feet along the vein, about 10 feet high, and estimated as averaging 14 inches thick. Large masses of native copper, weighing from two to four and five tons, have been found in the other drifts. The lode at the top of the bluff and along the upper part of the vein is from 14 to 16 inches wide, and at the bottom of the main shaft is about three feet wide. The lode through the whole vein contains more or less native copper disseminating through the vein stone. About 100 tons of masses of native copper are now on the way to market. Mr. Sherman saw a large quantity of native copper from this mine on the lake shore ready for shipment, and from 30 to 40 tons on the wharf at the Sault de St. Marie.

**North American.**—This mine has been under the able management of Judge Bacon, and the labor has been expended to as good, if not better advantage, than any other mine on the lake. Several shafts were sunk, and drifts driven during the last year, without the success anticipated. Two rich veins have been recently discovered of great promise. From one of these large masses of native copper superb specimens of native silver have been raised.

**North West.**—Several shafts have been sunk, and drifts driven along the vein. A large quantity of vein stone, containing native copper, has been raised. The vein increases in richness as it descends. The quantity of copper raised during the winter is estimated as more than sufficient to pay the expenses of the mine.

**Algonquin.**—From four to six miners have been at work at this mine during the winter. The main shaft on the vein is down about 30 feet, and a drift along the vein has been driven about 30 feet. About 40 to 45 tons of vein stone, containing copper, estimated at an average of 30 per cent. copper, has been raised, and about one half of it transported to the lake. The lode fills the vein entirely, and is about 30 to 35 inches wide.

**Isle Royal.**—Several discoveries have been made on this island by various companies; some of the mines belonging to the American Exploring company, and the Franklin company, are very promising and valuable. Mr. Whitteley, agent of the Union company; Mr. Talbot, on the northeast end of the island; Mr. Huganón, near Washington Harbor, and the agent of the Ohio and the Isle Royal company, have sent about 50 workmen, with a steam engine and other apparatus, to erect extensive smelting works upon the island, near Rock Harbor. The prospect at the mines upon the island is quite flattering, and appearances indicate that all those discovered are very valuable.

**Amigdaloid Island.**—The mines discovered upon this island by the American Exploring and Mining company, and the Franklin company, are of great promise. At two of



the mines, the companies above named are commencing operations.

**Prince's**—The accounts of large quantities of silver being found at this mine, are confirmed by subsequent reports in some degree, but not to the extent at first reported. A considerable quantity of silver has been found, but to what extent is not officially reported.

**Bruce**.—This mine continues to astonish all who visit it, with the rich display of copper ore. Large shipments of ore have been made, and the miners are busy at work, quarrying out immense quantities of ore. The value of this mine, judging from appearances thus far, is very great; and, taking all things into consideration, is probably the most valuable on Lake Superior.

#### Importance of Mineral Analysis in the Smelting of Iron.

Mr. S. B. Rogers, in a recent number of the London Mining Journal, communicates some very important data relative to the subject at the head of this article. It has been said that "the province of an assayer is exceedingly limited—he merely having to assay a stone for lead, copper, silver, or any other metal,—and there the knowledge of its contents is ended, so far as the assay is concerned." This remark is equally applicable to the examination of the ores of iron by assay. The assayer may approximate pretty nearly to the quantity of iron each ore may contain; but as to their *residua* no information whatever, is generally given,—though in the smelting of iron a knowledge of such residua, both as to nature and quantity, is of the greatest importance.

Mr. Rogers has often urged upon the attention of iron masters the many advantages that would arise from the due analysis of all the materials used in the smelting furnace. The aggregate loss of iron at large works—many thousands of tons annually!—in consequence of no attention being paid to the proper preparation of furnace mixtures, as analysis would clearly point out, would astonish those persons who may be unacquainted with the irregularities of iron furnaces under the present system, or rather non-system, of management; and it is nothing but the immense capital employed at such works that enables the proprietors of them to proceed with their operations over the drawbacks above stated, with comparative success and satisfaction.

The data to which we have referred, and which is given below, is from a work of Mr. Rogers, written some thirty years since, for the purpose of showing that analysis is, alone, in a manner, the sheet anchor of an iron smelter; for without a due and correct knowledge of the elementary constituents of his materials, and of their action and re-action in the furnace, it is impossible for him to anticipate the production of any result whatever, except as a mere matter of chance.

**Data, 2d Letter.**—"It may here be necessary to observe that, for the guidance of blast furnace managers, a correct analysis should, at all iron works, be made of the mines, and also of the limestones or other fluxes employed, and likewise of the coke and its ashes, in

order to show the amount, number, and proportions of the earthly matters therein contained; for, unless an operative manager be made fully acquainted with the earths and oxides upon which he has to work, all his efforts will, at best, be built upon conjecture, and his results entirely the effect of chance."

"The earthly matters of the ore can only be ascertained by analysis; it is, therefore, quite impossible to give data on this head to suit, not only for any two works, but for even a single work, that could be depended upon for a whole twelve-month together; repeated analysis of the iron making materials at each separate iron work should, therefore, be made whenever the slightest alteration appears in their quality."

**3d Letter.**—"A furnace manager, who is generally restricted to the use of limestone for the fusion of his materials, will have to apportion that flux in his charges, to correspond with the amount and nature of the earthly matters of his mines and fuel, and which 'amount' and 'nature' can only be known by analysis."—"The results of hundreds of analysis has convinced me, that no two strata of limestone, enclosing the coal field of Monmouthshire and South Wales, are exactly alike—indeed, stones worked out of the same stratum or bed, seldom continue of the same quality for a year round. Here, again, the smelter can only safely find his way by means of analysis—all else will be mere guess-work, and, therefore, quackery, from following which, countless thousands in value of money and material have been totally lost, both to iron masters and the country at large."

**4th Letter.**—"To remedy this evil—i. e., the use of an inadequate flux for bringing the earthly residua of the materials used in blast furnaces into perfect fusion without the addition of protoxide of iron—there is no other possibly safe and certain road for him to pursue than to repeatedly refer to the components of the materials upon which he (the furnace manager) may have to operate, and that by analysis only; all other modes of proceeding will be merely guess-work, and, therefore, alike uncertain and unsafe."

**7th Letter.**—"Now, with regard to the analysis of materials for the use of the iron smelter (and without which analysis all his processes will be pursued in the dark,) the contents of his mines, limestones, coke ashes, and auxiliary fluxes—all in the state in which they are put into the furnace—should be correctly ascertained and duly tabulated for ready reference to at any time."

**8th Letter.**—"By the smelter obtaining a proper analysis of his materials, and by attending to the principle I have endeavored to enforce—i. e., to assort his mines and fluxes, so that the residuary earths shall readily fuse at the usual temperature of his blast furnace, into a clear and colorless glass, or cinder, without the aid of protoxide of iron—any furnace manager may regulate his process so as, at all times, to obtain whatever iron result he may desire. This has always been termed an impossibility—at least, by all the smelters of what may now be termed the old

school—and very probably it will continue to be so considered, until the iron masters will, as a body, hold out sufficient inducements to tempt individuals to properly qualify themselves, by a due course of education, for the important and responsible situation of blast furnace managers."

#### Smelting Copper Ores by Electricity, again.

We have published several descriptions of the new method of smelting copper ores by electricity. We have yet another to give. It is a French invention, by M. M. Dechaud and M. Gaultier de Claubry. These gentlemen had long been engaged on the effect of weak electrical currents on copper ores; and the following is an account of the results at which they had arrived before taking out their patent. The process consists of two operations—viz: roasting the ore, and the precipitation of the copper. The roasting is effected in a reverberatory furnace, either by conversion of the sulphuret into sulphate by the action of the air, or in the transformation of the oxide of copper into sulphate, by calcining it with sulphate of iron, at a dull red heat in a current of air—the iron being left in a state of peroxide. Washing, then, extracts the sulphate of copper—so that the most impure minerals will afford copper equally pure with the carbonate or oxides. In the precipitation by galvanism, batteries would be far too costly; and they have obtained the same results without the use of exterior batteries. The principle is as follows:—If two solutions is placed one over the other, one of sulphate of copper very dense, and the other sulphate of iron less dense, and in the first is placed a plate of metal, and in the second, a fragment of cast iron, and then unite these two metals by a conductor, the precipitation of copper commences at once, and is completed in a long or short period, according to the temperature, the concentration of the liquids, and the extent of metallic surfaces—the state of the copper becomes greatly changed as the liquor becomes weaker. To obviate this, they take advantage of the following phenomena: After some minutes' action, there exists four strata in the liquids; at the bottom is a dense solution of sulphate of copper, then a less dense solution of the same salt; next, a sulphate of iron, and on the surface a less dense solution of the same. If, therefore, we arrange at the level of each of these liquids suitable apertures for the addition or the removal of the liquid, they can be kept at a uniform state of density, and thus the copper is always pure, and in the same physical condition.

For convenience, the liquids are now arranged in vertical, instead of horizontal layers; they are now to be separated by a diaphragm very permeable to electricity, but not to liquids—pasteboard answers perfectly well for this, and lasts for months. The apparatus is then arranged as follows: A chest of wood, lined with lead or some suitable mastic, contains the solution of sulphate of iron; into this chest a number of cases are plunged, made of a frame having its ends and bottoms formed of iron plates coated with lead, the

sides being of pasteboard. The strong solution of sulphate of copper enters through a pipe near the bottom, and escapes in its weak state through an opening at the top; in each case is placed a sheet of leaded iron, and between each are plates of cast iron; separate rods connect each plate with the common conductor, which is supported over the apparatus, and the copper is precipitated on both sides of the sheet of metal, the pasteboard preventing the immediate contact of the two liquids; the sulphate of iron thus floats above the sulphate of copper, and the apparatus fulfills all that is required. At a temperature of 680 Fah. 1073 feet of surface will receive 15,444 grs. of copper in 24 hours, perfectly pure, and immediately fit for flammering or passing through the rolling mill. This manufacture of copper presents no difficulties, requires no refining, and gives no scoria. The patentees consider that as a metallurgical result, 50 per cent. of the copper is obtained in sheets; 25 per cent. in fragments which require fusion; and 25 per cent. of powder requiring subsequent refining. The application of galvanism to smelting appears to be reduced to the simplest form, and electrotypes on the largest scale can be obtained. —*Am. Mining Journal.*

**ATLANTIC AND ST. LAWRENCE RAILROAD.**—Notice to Contractors.—Proposals in writing will be received at the office of the Atlantic and St. Lawrence Railroad Company, in the city of Portland, until Tuesday, the tenth day of August next, inclusive, at sunset, for the grading, masonry, and bridging of that portion of their road extending from the termination of the second division near the hotel road in Danville, to a place in the vicinity of Norway and Paris cape, a distance of about 20 miles. Maps, profiles, and specifications will be ready for examination on and after the second day of August next, at the Engineer's office in Portland, where all necessary information will be given.

The company will require, as one of the stipulations of the contract, that the heavier work on any section, shall be first attended to, so that the heavier and lighter work may be completed at nearly the same time.

Persons unknown to the officers of the company must accompany their bids with satisfactory evidence of their ability to execute the work. In all cases good and sufficient bonds with two or more sureties will be required for the faithful performance and fulfilment of the contract.

Wm. P. PREBLE, *President.*

Portland, June 30, 1847.

3c28

**MICHIGAN CENTRAL RAILROAD.**—NOTICE TO CONTRACTORS.—Proposals will be received by the Subscriber until the 1st of August next, for the Grading of that portion of the Michigan Central Railroad lying between Antwerp and New Buffalo, a distance of 60 miles.

Profiles and specifications will be ready for examination after the 15th day of July next, at the office of the subscriber, or that of Col. J. M. Berrien, at Kalamazoo, at which time the line will be shown to contractors.

J. W. BROOKS, *Supt.*

Michigan Central Railroad Office,  
6126 Detroit, June 17, 1847.

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 130 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 3½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by L. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.  
2v19 17

## FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.  
Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the *Journal* of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

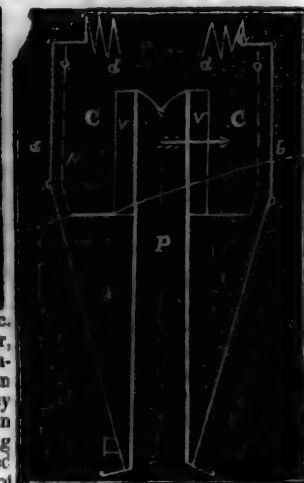
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

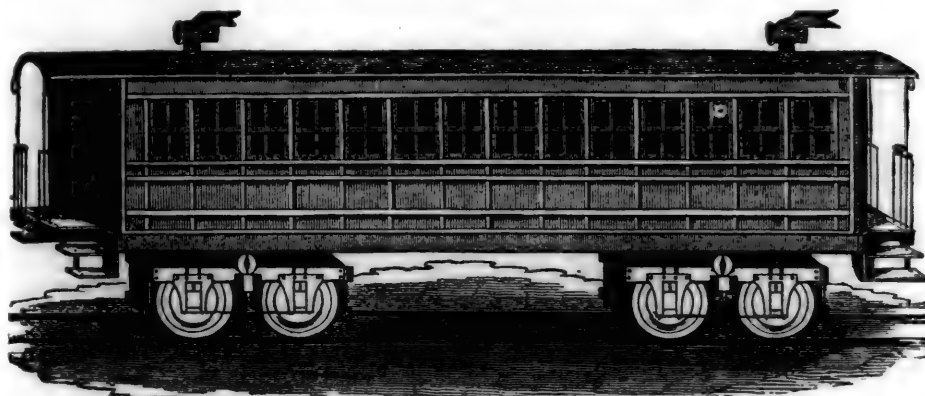
ROGERS, KETCHUM & GROSVENOR,  
445 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

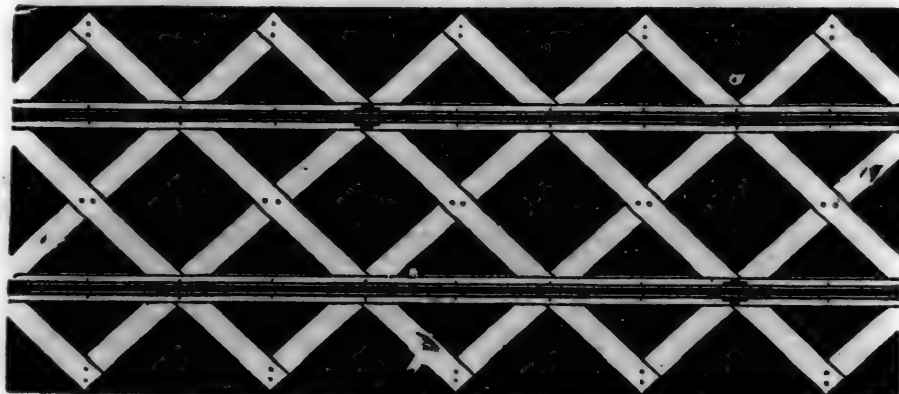


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis is 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =		
68,696 ft. b.m., at \$10 =		\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =		
4,403 ft. b.m., at \$13 =		57 24
13,000 Spikes = 2,250 lbs. at 4 1/2 cts =		101 25
Workmanship free of patent charge =		690 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 336f

## LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

## ENGINEERS' AND SURVEYORS'

### INSTRUMENTS MADE BY EDMUND DRAPER,

Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Road Depots, etc.

West Troy, May 13, 1847.

**ANDREW MENEELY.**

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**

12cf Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

1y48

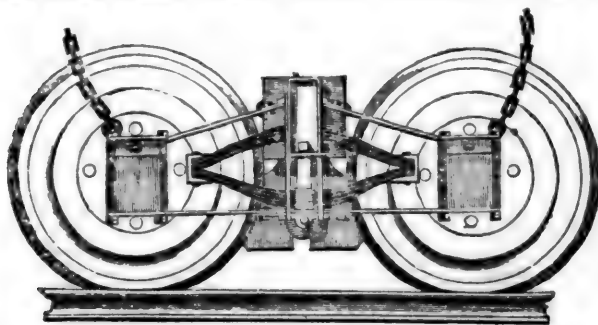
77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 321y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad. To all whom it may concern:—This is to certify that the New Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup' Motive Power

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	24 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

RAILWAY IRON.—THE BEST QUALITY  
of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2.

[1y4]

68 Broad St., New York.

## NICOLL'S PATENT SAFETY SWITCH—

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45

Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

## RAILWAY IRON.—DAVIS, BROOKS

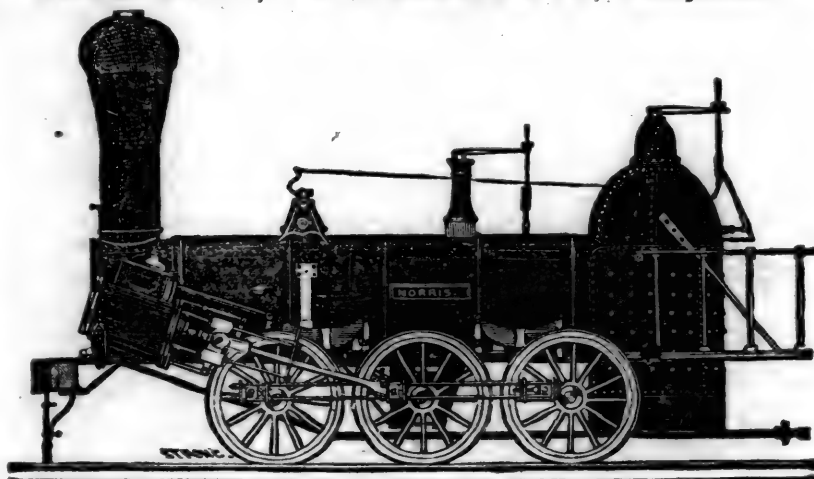
& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

40f



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order; and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON**, Mar. 20th 4 South Front St., Philadelphia. 28th

## VALUABLE PROPERTY ON THE MILL.

Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48 State st.**, or to **CURTIS, LEAVENS & CO., 106 State st.**, Boston, or to **A. & G. RALSTON & Co., Philadelphia.** ja45

## TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

## PASCAL IRON WORKS.

## WELDED WROUGHT IRON TUBES

From 4 inches to 4 ft in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLANS.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

## TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.

Pascal Iron Works, Philadelphia. Welded Wrought Iron Tubes, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 117

## PATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1y10 New York.

### LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only*. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

4tf

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

26tf

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

### LAP-WELDED WROUGHT IRON TUBES

for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

28tf

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

### CONCORD RAILROAD.—PASSENGER

Trains in connection with the Lowell & Nashua Railroads, run daily between

Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

26tf

N. G. UPHAM, Supt.

### NEW YORK AND ERIE RAILROAD LINE

SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5½ o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARK-SON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf

H. C. SEYMOUR, Sup't.

### WESTERN RAILROAD.—ON AND AFTER

Monday, April 5, 1847, the passenger trains will leave daily, Sun-

days excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.  
Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany.  
Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveler, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or leave Boston at 4 p. m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p. m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a. m. and 7 p. m. For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a. m., 1 and 3 p. m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.

C. A. SEAD, Agent, 27 State street, Boston.

### BOSTON AND PROVIDENCE RAIL-

road. Passenger Notice. Summer Arrangement. On and after Mon-

day, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington.—Leaves Boston every day, except Sunday, at 5 o'clock p. m.

Accommodation Trains.—leave Boston at 7 and 10½ a. m. and 4 p. m., and Providence at 7½ and 10½ a. m. and 4½ p. m.

Dedham trains, leave Boston at 8 a. m., 12½, 3½, 6½ and 9 p. m., Leave Dedham at 7 and 9½ a. m. and 2½, 5½ and 8 p. m.

Stoughton trains, leave Boston at 11½ a. m. and 5½ p. m. Leave Stoughton at 7 10 a. m. and 3½ p. m.

All baggage at the risk of the owners thereof.

25tf

W. RAYMOND LEE, Sup't.

### NEW YORK & HARLEM RAILROAD

CO.—Summer Arrangement.—On and after

Tuesday, June 1st, 1847, the cars

will run as follows, until further notice. Up trains will leave the City Hall for—

Yorkville, Harlem and Morrisana at 6, 8 and 11 a. m., 2, 2 30, 5 and 7 p. m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a. m., 4 and 5 30 p. m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a. m. and 4 p. m.—

Freight train at 1 p. m.

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a. m., 1, 3, 4 30, 6, 6 28 and 8 p. m.

Fordham, 8 08 and 9 15 a. m., 1 20 and 6 15 p. m.

Williams Bridge, 8 and 9 08 a. m., 1 10, 6 08 p. m.

Tuckahoe, 7 38 and 8 25 a. m., 12 55 and 5 52 p. m.

White Plains, 7 10 and 8 35 a. m., 12 50, 5 35 p. m.

Pleasantville, 8 15 a. m. and 5 15 p. m.

Newcastle, 8 a. m. and 5 p. m.

Mechanicsville, 7 48 a. m. and 4. 48 p. m.

Croton Falls, 7 30 a. m. and 4 30 p. m. Freight

train at 10 a. m.

Freight train will leave 32d street for Croton Falls

and intermediate places, 4 a. m. and City Hall 1 p. m.

Returning, leave Croton Falls 10 a. m. and 9½ p. m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a. m., 4 p. m.

Croton Falls for City Hall, 7 30 a. m., 4 30 p. m.

Leave City Hall for White Plains and intermediate

places, 7 and 10 a. m. 4 and 5 30 p. m.

White Plains for City Hall, 7 10 and 8 35 a. m.,

12 30 and 5 35 p. m.

Extra trains will be run to Harlem, Fordham and

Williams Bridge on Sunday, when the weather is

fine.

The trains to and from Croton Falls will not stop

on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take

up passengers in the city.

Fare from New York to Croton Falls and Somers

\$1, to Mechanicsville 87½c., to Newcastle 75c., to

Pleasantville 62½c., to White Plains 50c. 25tf

### LONG ISLAND RAILROAD COMPANY.

Summer Arrangement. On and after Monday

May 1st, trains will run as

follows, except Sundays:

Leave—Brooklyn at 9 1-2 a. m. for Farmingdale,

1 1-2 p. m. for Greenport, at 4 p. m. for Farmingdale.

Leave Farmingdale at 7 a. m. for Brooklyn, 12 m.

do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a. m. for Brooklyn.

Leave Jamaica at 8 a. m. for Brooklyn, at 1 p. m.

do., at 4½ p. m. do.

On Saturdays, a train will leave Brooklyn for

Yaphank, at 4 p. m. Leave Yaphank, on Mondays

for Brooklyn at 5 1-2 a. m.

On and after May 15th, and until September 1st,

1847, a train will leave Jamaica at 7 a. m. for Brooklyn—

leave Brooklyn at 6 p. m. for Jamaica, and will

land and receive passengers at any place between

Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a. m. for

Farmingdale; leave Farmingdale at 4 p. m. for

Brooklyn.

Freight Trains—leave Brooklyn at 10 a. m. for

Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of

Whitehall street, to receive baggage for the several

trains, 30 minutes before the hour of starting from

the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves

Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

25tf DAVID S. IVES, Sup't.

### PATERSON RAILROAD

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at New York at

8 o'clock a. m. 9½ o'clock a. m.

11½ o'clock a. m. 12 1-4 o'clock p. m.

4 o'clock p. m. 5½ o'clock p. m.

On Sunday.

8 o'clock a. m. 9½ o'clock a. m.

4 o'clock p. m. 5½ o'clock p. m.

Office 75 Courtlandt St.



**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

## FARE.

Fare to York.....\$1 50  
" "Wrightsville.....2 00  
" "Columbia.....2 12½  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Supt.  
31 ly Ticket Office, 63 North st.

**BOSTON AND MAINE RAILROAD.**  
Upper Route, to Portland and the East.SUMMER ARRANGEMENT,  
April 1, 1847.

**PORTLAND TRAINS.**  
Leave Boston at 7 A.M. and 2½ P.M.  
Leave Portland at 7½ A.M. and 3 P.M.  
**GREAT FALLS TRAIN.**  
Leave Boston at 5 P.M.  
Leave Great Falls at 6½ A.M.

**HAVERHILL TRAINS.**  
Leave Boston at 11½ A.M. and 6:20 P.M.  
Leave Haverhill at 6½ A.M. and 4½ P.M.

**READING TRAINS.**  
Leave Boston at 8½ A.M. and 8½ P.M.  
Leave Reading at 6 A.M. and 1½ P.M.

**MEDFORD BRANCH TRAINS.**  
Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.  
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.  
The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above \$50 in value, and that personal, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every \$500 additional value.

1y31 CHAS. MINOT, Super't.

**NORWICH AND WORCESTER RAILROAD.**  
Road. Summer Arrangement. Change of

Hours. Commencing on  
Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.)  
Leave Norwich, at 6 a.m., and 4½ p.m. Leave  
Worcester, at 8½ a.m., and 4½ p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat.—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6:30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars. 32 ly

J. W. STOWELL, Supt

**PHILADELPHIA AND READING RAILROAD.**  
Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A.M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A.M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" "Reading, 58	2.25 and 1.90		
" "Pottsville, 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

**PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.**

## Summer Arrangement.

Philadelphia for Baltimore.....8 a.m. and 10 p.m.  
Baltimore for Philadelphia.....9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

Engineer and General Superintendent.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.**  
On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.

**NEW YORK AND PHILADELPHIA RAILROAD line.—direct.**  
Via Newark, New Brunswick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

## FARE BETWEEN NEW YORK &amp; PHILA.

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD.—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freepport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.....\$1 00  
" " " "Xenia.....1 50  
" " " "Springfield.....2 00  
" " " "Columbus.....4 00  
" " " "Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47½ W. H. CLEMENT, Supt.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Piusburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 26 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

## WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 31 ly

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 ly

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190  
Macon to Atlanta—Macon and Western ..... 101  
Atlanta to Oothcaloga—Western and Atlantic.. 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	\$0 50	\$0 75
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 50	0 62 1/2
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20	0 26
Crockery, per cubic foot.....	0 15	" 35
Molasses and Oil, per bhd., (smaller casks in proportion).....	9 00	13 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		
Goods consigned to the subscriber will be forwarded free of Commissions.		
Freight may be paid at Savannah, Atlanta or Oothcaloga.		
F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.		1y34

**CENTRAL RAILROAD—FROM SAVANNAH** to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil)..... \$1 50 per barrel. On brls. dry (except lime)..... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons..... \$5 00 per bhd. On molasses and oil..... \$6 00 per bhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A** Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily..... \$26 50 Fare through from Charleston to Huntsville, Decatur and Tusculumbia..... 22 00 The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.** AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES. This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 368 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga and Dalton.	Between Charleston, Oothcaloga and Dalton.
		250 miles.	365 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....		\$0 16	\$0 26
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.		1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.		0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....		0 45	0 70
Cotton, per 100 lbs.....		0 45	0 65
Molasses, per hoghead.....		8 50	13 50
" " barrel.....		2 00	3 25
Salt per bushel.....		0 17	
Salt per Liverpool sack.....			95
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....		0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON, CA. Eng. and Gen. Agent. Augusta, Sept. 2d, 1846. \*44 1y

**GREAT SOUTHERN MAIL LINE VIA** Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 P.M., Philadelphia at 10 P.M., and Baltimore at 6 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston..... \$31 00 " " " Richmond..... 6 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to 1y14 STOCTON & FALLS, Agents.

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846. 1y1

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

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Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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One column ".....	50 00
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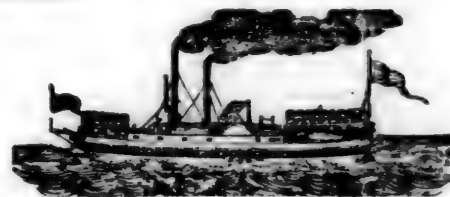


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III., No. 32.]

SATURDAY, AUGUST 7, 1847.

[WHOLE No. 581, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, August 7, 1847.

### Canadian Railways.

We have the pleasure of inserting, in this number of the Journal, the Notice to Contractors of the "GREAT WESTERN," Canada, Railroad Company, for the "letting" of one hundred and fifty-five miles of their important work. This looks like going ahead with a rush, and like making up for the delay which has been so uncomfortable to the friends of the work. With good management, now that they are fairly in the field, we have reason to hope that the work will be soon completed.

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

### Stony Brook Railroad.

We understand, says the Bunker Hill Aurora, that the contract for the grading, masonry, and superstructure of the Stony Brook railroad, has been taken by McCullough, Priehard & Co., and that the work will be shortly commenced. This road will connect Lowell with the Fitchburg, Peterborough, and Shirley, and Nashua and Worcester railroads, at the Groton depot.

### Spark Arrester of French & Baird.

The value of this appendage to the locomotive has been thoroughly tested, and found to surpass any thing of the kind, for that purpose, in use in this country. An evidence of the estimation of its value may be found in the fact that nearly four hundred of them have been made within the past four years. We saw six of them nearly completed, on a visit to the manufactory, a few days since, to fill an order for the "Cardenas Railroad," in Cuba—another order was recently filled with nine of them, made of copper, for the "Havanna and Guienas Railroad," on the same island—and fifteen others were sent to the different roads in Cuba last year. These spark arresters are also, we understand, very generally used on the railroads in the southern states, where cotton is transported. They are almost a certain preventive of accidents by fire from sparks, as well as a great relief to passengers—and should be used on every locomotive in the country. There has not been, we understand and believe, a single accident from fire, arising from the sparks from the locomotive where this arresters has been used—while on some roads fires, causing great loss of property, were not uncommon before the introduction of the "Spark Arresters" of French, Baird & Campbell, of Philadelphia.

### Railroad Brakes.

We have deemed this subject one of great importance, and have therefore often referred to it, and published accounts of what have been termed "improved brakes," from the English Journals.

The following communication is from a gentleman who desires its publication, yet declines to give his name for the present. We comply with his request, as we hold that every inventor should judge for himself when, and how, to bring his inventions before the community; yet we assure him that, if he has such a "brake" as he anticipates, we shall not allow him to keep it long to himself. Such a machine is too much needed on our numerous railroads, and will be too highly prized, to be allowed to remain long out of use. The writer says:

"Having observed in your valuable Journal, from time to time, articles on the railroad car brake, I intrude myself upon your notice to state that about eighteen months ago I took this subject into consideration, and devoted a good deal of thought to it, the result of which was the perfecting of a plan by which every car in a train—of no matter what length—can be effectually and instantaneously braked at the will

of the engine man, and without the aid of any other person.

"Everything desirable in a brake is combined in this plan, and the cost of attaching it to each car would not exceed \$6, or thereabouts—a very small item when compared with the losses sustained so frequently from accidents which this brake would entirely prevent.

"My peculiar situation has hitherto kept me silent on the subject; but should any person desire it, I would cheerfully enter into arrangements for the introduction of this brake upon the different railroads in the country. Truly yours, L."

### Coupling for Railroad Cars.

We find the following description of an improved coupling for railroad cars in the Baltimore Clipper, of 31st July. If it is, as represented, it should be better known, and in general use—as many serious accidents have occurred from the difficulty of detaching the cars from the train. If the inventor will send one of them to the office of the Railroad Journal, as a sample, we will—if it proves to be what it is represented—do our best to aid in its introduction upon all the railroads. The Clipper says:

"Mr. A. G. Heckrote has recently patented a new machine for the coupling of railroad cars, which promises to be of great utility. In addition to the ordinary coupling box, a flat roller, a tumbler similar to that of a gun lock, a dog and a spring, are attached, all made of cast iron, except the spring, and weighing about 100 lbs. It is self-acting, so that two cars can be coupled without the danger usually attendant on the old plan. The machine has play sufficient for any curve or angle of a switch; but in case of a car running off the track, it instantly detaches all the cars behind; and any car or number of cars can be detached at pleasure, by a slight pressure of the spring, by the hand or foot, without stopping or impeding the cars or locomotive in front. The expense of a machine is from \$6 to \$10, and it will, no doubt, supersede the old fashioned bolts and chains. One was tried on the Washington Branch road for twelve days, and found to answer every purpose for which it was designed. A machine similar to this would have avoided many accidents and consequent loss of life, which have frequently resulted from whole and parts of trains of cars running off the track, as well as many which have occurred from the old manner of coupling, when stationary."

**Lebanon Springs, N. Y., and Bennington, Vt. Railroad.**

We have, more than once before, called attention to the importance of a railroad from the Western Massachusetts railroad, at or near Canada, by the way of Lebanon Springs, to Bennington, and thence to Rutland, in Vermont, thus opening a direct communication between the Housatonic railroad and the Harlem railroad, when it shall—as it will—find an outlet at the north. There is a rich and fruitful valley, with easy grades and abundant water power, where a railroad may be easily constructed, and then well supplied with a profitable local business, in addition to a large through business, when there shall be an uninterrupted line from the city of New York to Burlington, and to Ogdensburg, and to Montreal, as will soon be the case, either through this valley, or by the way of Pittsfield and North Adams, and thence to Rutland.

The trade of western Vermont is too important a matter for the merchants of New York to give it up to Boston without an effort; and therefore a railroad will be constructed by which that trade may reach New York direct, and then for a fair competition. It therefore stands our friends, at Lebanon Springs, in hand to move early and earnestly in the matter.

The following extract from a letter from a gentleman at the Springs, says:

"You will, I hope, again indulge me in a remark or two in relation to the hope we cherish—that one day our valley will supply a link in the great railroad which will connect New York with Montreal, Quebec and Ogdensburg. We are watching the progress of the several roads north and south of us, and it is gratifying to see the Harlem railroad rising in public estimation. So far as we are interested, it will serve our purpose if this road forms a junction with the Housatonic, where I have marked on the enclosed map—from the Canaan Flat Brook we have a survey to the Springs, eight miles, by a competent engineer, showing a grade in no case exceeding forty-one feet to the mile, and in one or two instances, only coming in the neighborhood of that elevation. The grade from Lebanon Springs to Bennington, Vt., is much less than that maximum, pursuing, as it does, a direct course through a great valley the whole distance, some 25 or 30 miles."

From this it will be seen that the route is exceedingly favorable, and only requires a little effort to carry it through, and we trust that that effort will be effectually made at an early day.

**Railroads in North Carolina.**

The Fayetteville (N. C.) Observer says, that immediate steps are to be taken to raise a fund for making a survey of the route for the railroad from Raleigh to Camden, under the superintendence of a corps of engineers, to be selected by the capitalists of Boston, who have purchased the Portsmouth and Roanoke road, and who are about to extend that road to the Raleigh and Gaston road. On the 15th instant, books of subscription were opened at Weldon, to the stock of the company, chartered by the North Carolina Legislature, to fill the space from the present termination of the Portsmouth road to and by Weldon to the Gaston road. A sufficient amount was promptly subscribed by the citizens and the Boston company, and the first instalment paid in. A partial survey of the route has already been made, and it is supposed that the junction will be made at a point near Littleton, on the Gaston road. A meeting of the stockholders will soon be held, and the company organized by the appointment of officers. It is expected that this road, in first rate order, will be ready for next spring's travel.

**Ocean Steam Ships.**

A friend and correspondent in London asks us "How does it happen that the steam ship Washington, which is to leave New York on 1st of June for Bremen, has so much more 'horse power' than English steam ships of equal, or greater tonnage? Has not the advertisement respecting the Washington, announced that she has more horse power than tonnage, or as much? Is the mode of measuring horse power different in America from that used in England, as is the case in regard to tonnage?"

We find, by referring to the advertisement of the Washington, that the tonnage is put down at 1750, and her power at 2000 horse—or "two engines of a thousand horse power each."

The mode of estimating "a horse power" is the same, we believe, in both countries, viz:—though in our estimation it is not always accurate.

The power of the Washington to her tonnage is greatly disproportionate, in comparison with English ocean steam ships, if those built and building for the "Peninsular and Oriental steam navigation company" are any criterion. By the report of this company, made at their last half-yearly meeting, we observe that since the previous "meeting of the proprietors the following vessels have been despatched by the directors to India and China, viz:

	Tons.	Horse power.
The "Haddington".....	1,647	500
" "Pekin".....	1,182	430
" "Pottinger".....	1,401	500

This addition to the company's ships in the east will greatly improve the efficiency of the establishment, and give a more permanent character to its operations in that quarter. The directors intend to follow up these arrangements, by placing two additional vessels in the Indian seas. And for this object, they have made contracts with Messrs. Pitcher, for two timber ships of 1,205 tons each; and engines by Messrs. Miller, Ravenhill, & Co., of 450 horse power each; Messrs. White, of Cowes, are also building for the company one vessel of 900 tons, to be fitted with engines of 350 horse power. In addition to the foregoing, the following vessels are in course of completion, and will be added to the company's fleet this year, viz:—

	Tons.	Horse power.	Ready for sea.
The "Indus".....	1,220	500	June, 1847.
" "Trafalgar".....	1,000	400	July, 1847.
The "....."	1,040	400	Oct., 1847.
The "....."	1,220	500	Dec., 1847.

From this it appears that the power compared with the tonnage is less than half—while in the Washington it is naturally greater.

We should like to hear from some of our readers, interested in and familiar with the subject.

**Louisa, Va., Railroad.**

We are indebted to Col. Fontaine, says the Richmond Republican, for a copy of the proceedings of the twelfth annual meeting of the stockholders of the Louisa railroad company. We shall make a more extended notice, as soon as we are able to examine its proceedings.

We are glad to see the increasing interest manifested by the people of Albemarle, Rockingham, etc., in regard to the Louisa extension. But what are our good friends of Augusta doing? Surely they cannot be insensible to the importance of earnest and speedy action.

The affairs of the company have been conducted with the greatest skill and prudence, under the auspices of Col. Fontaine, its able, sagacious, and energetic president.

We have never yet seen a report of this company. (Ed. R. R. J.)

**The Iron Trade.**

The London Mining Journal, of 25th June, says that the average price of rails was £9 and £9 5s.—and that Scotch pig in the Clyde was £3 3s. and £3 5s.

The Glasgow pig iron trade was dull. A lot of mixed Nos. was forced on the market under peculiar circumstances, and brought 64s. 3d.—cash.

On the 2d of July the quotation for rails was £8 15s.: yet the reports from Glasgow and South Staffordshire were better than the previous week—as will be seen by the following extracts from the Mining Journal, of 3d July:

*Glasgow Scotch Pig Iron Trade, July 1.*—The business done in pig iron for the last week has been very limited. The market opened rather more firmly this week, and the subsequent accounts of a falling grain market have confirmed an improvement in prices. Some sales have been made at 65s. and 65s. 6d., cash, for mixed Nos. To-day we have buyers at 65s. 6d., and sellers at 66s. 6d. cash.

*South Staffordshire.*—The prospects of the staple trade of South Staffordshire for the ensuing quarter are extremely flattering, and the downward tendency of the corn market, accompanied by the probability of an early and abundant harvest, have inspired confidence in the minds of those most interested in this important branch of commercial and industrial enterprise. The preliminary meeting of the iron masters, in an anticipation of the general quarterly meetings which are held, at stated times in various parts of the district, was held yesterday, at the Stewpony Inn, near Stourbridge. It was very numerously attended by the influential members of the trade, and we are happy to state that the gloomy forebodings of railway repudiation have not been realized. The trade was represented as peculiarly firm in its aspect—the orders were abundant, and a virtual resolution to support the present prices was unanimously agreed to. The formal meetings of the trade will be held next week, and we are led to anticipate from the activity which has prevailed during the last quarter, and the healthy state of trade throughout the district, that the result will be satisfactory both for past and future.

**Railway Compass.**

It is stated in an English paper that an instrument has been invented which will "at all times show the speed of the engine, the distance to the next station, and the position of the train on the line. A chronometer connected with it shows the railway time. It will note the time occupied at each station, and the speed of each mile, on a paper, which can be taken off and filed. One index on the dial points to the place which corresponds to the one on the railway; another indicates the speed; a third revolves once in 10,000 miles, showing what distance the engine has travelled. This instrument is moved by a separate wheel running on the rail, is not affected by breaks, and being illuminated at night, is easily seen by the engineer. The experiment has been successfully tried, fully realizing the anticipations of the inventor."

This may be a very useful instrument, but we would give more for a good "brake,"—such an one as is spoken of by our correspondent "L." in another column, than for a dozen such instruments.

**Atmospheric Railway.**

We regret exceedingly to hear the following admission from one who has watched the progress of this beautiful system, and who has formerly had great confidence in its ultimate success. He says,

"I am afraid the practical difficulties respecting the atmospheric railway are not sufficiently overcome to make it an economical mode of traction. The Croydon atmospheric is given up, and—although some papers say that the 'South Devon' and the 'French' atmospheric are doing well, Herapath says the contrary.—It is impossible to come to any conclusion on the subject. The Kingston and Dublin atmospheric certainly does well."



## INSTITUTION OF CIVIL ENGINEERS.

Who can estimate the benefits resulting to science, and to the profession, from this noble institution in England? At almost every meeting some valuable paper is read by some one of its members, and speedily published in that excellent periodical the *Civil Engineer and Architects Journal*. Through the instrumentality of this institution, the discoveries and improvements of the numerous able men of the country are brought under consideration and discussion, and then given to the public in a manner which commands respect and confidence.

So highly is it estimated in Europe, that a similar institution is to be established in France, under the auspices of the minister of public works—and we trust that ere long we may have one established in this country.

We find the following article on the difficulties of "bridge building" in Holland, in the number for April of the *C. E. & A. J.* It was read at the meeting of 16th of March, by the CHEVALIER CONRAD.

The paper read was "*A description of the method adopted in Preparing the Foundations and in Building the Bridge over the Polder vaart, on the line of the Amsterdam and Rotterdam Railway.*"—By the Chevalier Conrad, M. Inst. C. E., compiled by Mr. C. Manby, secretary, from documents furnished by Mynheer Wenckebach.

This bridge derived its importance from the peculiarly treacherous nature of the ground upon which it was constructed, for, although in Holland bad foundations are the rule rather than the exception, the difficulties were in this case so peculiarly great, as to demand particular notice. The Polder vaart is a canal encompassing and conveying away the waters from the Polders, or spots of drained land in the commune of Kethel. The railway, traversing it at a considerable angle, rendered a skew bridge, of three openings, necessary—the centre one 13 feet space for the navigation, and the two side arches 21 ft. space each, for the drainage water. The proceedings were commenced in the usual manner, with the intention of having separate foundations for each pier; this was by shooting in large quantities of sand, to form dams, within which, when pumped dry, the foundations would have been excavated.—After a length of about 70 feet of sand, a dam 10 feet deep had been filled in, without exhibiting any signs of sinking; a heavy thunder storm occurred, during which the whole mass of sand dam was suddenly engulfed to the depth of 20 feet; while there arose simultaneously, at a short distance down the canal, to above the water level, a mass of bog earth, of an area of 4989 square feet—this mass increasing at subsequent periods of the proceedings to the area of 9628 square feet. It was evident that an extensive subterranean shifting of the bog earth had occurred, and there was reason to fear for the safety of the adjacent dykes and other works.—Piling and facine works were tried without success: piles of 70 feet in length, when driven and tied together, by waling pieces, swerved bodily from their position, and became useless; fascines equally failed in producing stability. The engineer, therefore, determined, after directing the canal water in-

to a side cut, to surround the site of the intended foundation with mounds of sand, allowing for their subsidence in the gulf below and then squeezing up the bog earth around and within the spot. This was at length completed, and the foundation pit was enabled to be pumped dry. It then became necessary to remove all the bog earth from within the space for the foundation, which was accomplished by digging out spaces of a yard square, and filling them in with sand as they proceeded, until, by commencing at the exterior, and working inwards to the centre, all the bog earth was removed, and a bed of sand had been formed in its place. The piles for the ordinary foundation used in Holland, were then driven through the made ground, and the structure was completed with perfect success: the sand dams, and the masses of upraised bog earth outside, being subsequently dredged up in the ordinary manner, to restore the canal to its original bed. In this description, the circumstance most deserving attention, appeared to be the sudden rising of the bog earth during a thunder storm. This is, however, of frequent occurrence in Holland; and it would appear as if the adhesion of the masses of bog earth to the bottom was so slight, that the vibration communicated to the water by the thunder, sufficed to destroy the equilibrium, and the bog turf, which, from its slight specific gravity, will float even when wet, instantly rose to the surface; when therefore, as in this case, a heavy mass of sand was placed in the vicinity of such bog earth, the bottom was unable to resist the pressure, and the least vibration caused it to break through the crust, being engulfed amidst the lighter material, which it forced up in the direction of the least resistance. The paper treated at some length on all the precautions necessary in this and similar constructions in Holland, where such bad foundations are of very constant occurrence. In the discussion which ensued, descriptions were given of the simpler methods employed in similar situations in England, where bridges of greater weight and space were constructed upon foundations of nearly as treacherous natures: for instance, on one of the branches of the Norfolk railway, for a bridge of which the swinging portion weighed 100 tons, a series of 16 piles, driven 50 feet deep into the silt in 12 feet water, supported a cast iron kirk, upon which a cast iron close jointed cylinder was lowered and secured; within this the centre foundation was built and had stood perfectly.

Other instances of raft, or floating foundations, common in Lincolnshire, were adduced, showing the simple means by which such local difficulties were overcome in England.

## The Connecticut River Railway.

We find in an exchange paper the following article in relation to the *Connecticut River Railway*. It gives an interesting and cheering view of the progress of that important link of railroad which is destined to connect the cities of New York, New Haven, Hartford and Boston, with Montreal and Quebec—which, indeed, is to intersect the numerous important lines of railroad from the Atlantic cities,

New York and eastward, to the Canadas—to Burlington, Ogdensburg, Rutland, Whitehall and Albany.

The editor of the *Springfield Republican* speaks from personal knowledge, as he lives in the very heart of the Connecticut valley—yet we may be allowed to give an opinion in relation to the same matter, as we can also speak of that region of country from long personal knowledge.

It is true, as he says, that "the Connecticut valley is the *Garden of New England*;" and it is destined to become—if it is not now so—and remain the most populous part of the Union. It will produce and send to market annually a greater value of property than any other region of equal extent, and consequently there will be more passengers passing over it than over any other road in the country, except between large cities, and except also between those cities and the great west—and therefore the Connecticut River railway will become—and that, too, in a few years—one of the most productive railroads in the country. Let those, then, who are immediately interested in it, lose no time in pressing it forward to a speedy completion. The editor says:

"We have lately directed some attention, and in turn would earnestly invite that of the public generally, and more particularly of that large portion of New England which lies along the *Valley of the Connecticut*, to the importance of speedy action on the subject of that line of railroad communication, which, extending from the northern boundary of New England to the city of New York on the south, and northerly to the cities of Montreal and Quebec, forms what may emphatically be called, the *Connecticut River Railway*."

"Of the many important lines of railroad, now constructed or in progress of construction in New England, there is none perhaps which touches the interests and important interests too, of so widely extended a population, as does this. It passes through the heart of the country, and in one of the most populous and richest valleys of our land; and may, when brought to perfection, unite upon it an amount of business, the extent of which can scarcely be realized at this time. We propose to state a few facts, showing the present position of the line as a railway communication, and exhibiting in a striking light the necessity and importance for early action to make its perfection sure and speedy."

"This line is about 488 miles in extent, and embraces at present several distinct lines of railway, all of which are completed or in rapid course of completion, with the single exception of the line between Greenfield and Bellows Falls, a distance of only about 40 miles."

"The importance of this connection may easily be seen by a slight inspection of the map of the country: and we invite the reader to make such an inspection. To aid and explain the examination, the following list of the roads, now completed and in progress of construction, and the lacking connection is given:

	Miles.
Montreal to Sherbrook.....	85
Sherbrook to Derby.....	30
Derby to White River.....	114
White River to Bellows Falls.....	40
Bellows Falls to Greenfield.....	40

Greenfield to Springfield.....	38
Springfield to New Haven.....	61
New Haven to New York.....	80

Total distance.....488

"Of this distance there are now completed and in actual operation, the lines from

New Haven to Springfield.....	61
Springfield to Greenfield.....	38

99

"And in the course of a year there will be completed the following additional portions:

Montreal to Acton.....	45
Wells River to White River.....	40
White River to Bellows Falls.....	40
New Haven to New York.....	80

205

"There will then remain to be completed, the lines from

Acton to Sherbrook.....	40
Sherbrook to Derby.....	30
Derby to Wells River.....	74
Bellows Falls to Greenfield.....	40

181

"Of these, the lines from

Acton to Sherbrook.....	40
Sherbrook to Derby.....	30
Derby to Wells River.....	74

144

will probably be completed in the year 1849—leaving the line from Bellows Falls to Greenfield alone unprovided for.

"A matter of such immense importance to the whole of this extensive territory—and this cannot fail now to appear so to every reflecting mind, who has accompanied us thro' this route as above—should not pass without attention. Immediate provision should be made for the connection of this line between Bellows Falls and Greenfield; and for this purpose we cannot believe that anything more is necessary, than that the subject should be fully presented to the public.

"We understand, and we rejoice to learn the fact, that arrangements are in progress for holding a convention of all the parties interested in this extension, or rather connecting line, at some central point, for the purpose of taking such measures as will ensure the construction of the work. We cannot permit ourselves to doubt the success of any rightly made efforts for this purpose, and we hope to see them promptly made, and vigorously carried forward.

"The success of the existing lines, independent of the immense aid which a thorough connection would give them, is such, even from their short experience, as to afford ample evidence of a high state of prosperity.—To substantiate this more fully, we have obtained some facts relative to the 'Connecticut River railroad,' extending from Springfield to Greenfield.

"This road paid dividends of interest to its stockholders up to near the close of last year, the time when it was completed. On the 1st of July instant, it declared a dividend of 3 per cent. from its net earnings, being its first semi-annual dividend.

"The roads in New England are very few that have so promptly met the expectations of their proprietors. Those which rival it in

this respect, enter Boston. But this road is in the country, remote from large cities. Its northern terminus is at present in a small town, of not exceeding 2000 inhabitants. Its success is owing to, and demonstrates most fully, the populousness and richness of the country through which it passes. The valley of the Connecticut is truly the garden of New England.

"The coming months of the year from July 1, are much richer in business and less in expenses, than the past six months. A dividend of 3 per cent. may therefore be relied upon for January 1, 1848. The second year will do better than the first, if the experience of other roads teaches aright.

"The number of passengers over the road on Monday, the 5th July, was nearly 8,000, which will compare well with the business of that day on railroads leading from Boston.

"About half way between Springfield and Northampton, the road passes through the heart of what is destined to become, at no very distant day, the largest manufacturing city of New England, commanding the entire water power of the Connecticut river. This property has just been purchased by wealthy capitalists, who will push forward improvements with great rapidity during another season.

"With Springfield and its 15,000 inhabitants at its southern terminus—with Northampton, so much frequented by travellers, at its centre—and with numerous literary institutions and with rich and populous villages throughout its length, the Connecticut River road cannot fail to do a large and remunerating business. The 'New City' is hardly needed to add assurance; nevertheless, it is rapidly coming into life, and will add astonishingly to the business of the entire valley.

"There is no reason to doubt, that the other roads of the valley will have an experience like that, which has fallen to the Connecticut river railroad, during the short time it has been in operation; and when the lines are all connected together into one grand chain, extending from Montreal and Quebec to New York city, the augmentation, which the travel between the extremities,—induced by necessity and convenience in winter, at least, and by pleasure in summer—the produce of the north seeking a southern market and returning goods of every description, will give to them, one and all, a place undoubtedly by the side of the most prosperous and profitable roads in the whole country."

#### Baltimore and Ohio Railroad.

Continued from page 485.

From other high sources in the State of Ohio, men eminent for their official rank and practical knowledge and experience, the committee have been assured, that both the government and people of Ohio require that the line of eastern and western connection by railroad through their State should be nearly central as possible, and that the nearer it could pursue the course of the National road, the more acceptable it would be, and the greater encouragement it would receive. The same sources reject a connection with

far off, and too remote for the great resources of the State, and they also reject Parkersburg, as being upon the other extreme.—They uniformly prefer Wheeling, or some point near it, and not remote from the National road; and they all concur in the opinion, that if this company should conclude to terminate their road at Wheeling, and begin in earnest to construct it to that terminus, the resources of these parts of the Ohio more particularly interested, would be immediately called into activity, and the great central line be promptly extended to the river opposite to that city.

The committee have felt it to be their principal duty to refer emphatically to this certainty of a connection with the western improvements, since, without such reliance, there could be little object in the expenditure of any amount of capital in reaching the Ohio river at any point. Those improvements, when, and wherever made, must ultimately supersede the river navigation for the purpose of travel, and materially interfere with the transportation of tonnage by the same channel; and any railway from the Atlantic seaboard, that does not reach the proximity of the great line of railway communication from the Ohio river throughout the valley of the Mississippi, will surrender the main object of the enterprise. The committee are not aware that information, more pertinent or more to be relied upon than that they have produced, could have been obtained. The cities of Columbus and Zanesville, and the State of Ohio generally can have no ground of preference for any road to the Atlantic but one founded upon the most direct and the cheapest line to market.

Of the minute, familiar knowledge of the subject in all its details, of their acquaintance with their own interests, and of their sagacity in adopting the best mode of promoting them, no one can doubt; and when all these great interests are found of universal accord in rejecting one route, as only to be forced upon them from necessity, and recommending another as certain to develop their own resources, and to ensure a communication between Cincinnati and the far west and Baltimore, it would seem to be unwise to reject their positive information, and resort to the region of speculation to find something better. It should not escape the attention of the Board that, while in the central and southern parts of the State of Ohio, there may be some difference of opinion whether the preference, as to the terminus of our road, should be at Wheeling, or Fishing creek, or Parkersburg, they all unite in one common, universal sentiment in discouraging and deprecating a terminus at Pittsburg, or at any point north of Wheeling; and it is worthy of remark, that such a universality of sentiment is strictly coincident with, and powerfully corroborative of, the views and preferences of the original projectors of this enterprise. Indeed, the committee would find it difficult to suggest or imagine a stronger incentive to the prosecution of the road to any given point on the Ohio river, than that in the enlightened opinion of the



great mass of the intelligence and practical experience of the western country, it would ensure an immediate connection with those improvements by which the travel and trade of the Mississippi valley were to be conducted to the Atlantic market.

Upon the present occasion, however, the terminus or termini of the Baltimore and Ohio railroad recommended by the committee, offer the additional advantage, that while they ensure an early connection with the western improvements, they also ensure the command of the trade and travel of the western country, whether pursuing the river navigation or the improvements on land, *without competition*. The distance from Columbus and Zanesville to Wheeling being nearly seventy miles less than to Pittsburg, by the most favorable route that has been suggested to the last named city, it must be obvious that the shorter and cheaper lines will be the first to be made, and equally so, that in the face of shorter and cheaper lines, it will not be easy to command the capital or find an adequate incentive to construct others, both larger and more expensive. No such expectation could be entertained, at least until the growth of the western country should indispensably require further improvements, even at a greater cost to supply its wants. The committee would also remark, without unnecessarily swelling this report with tables or details of distances, that by the proposed route to Wheeling, and thence by easy, practicable lines to Columbus, the distance thence to Baltimore would be considerably shorter than to Philadelphia by the way of Pittsburg. It is equally undeniable, that the river trade and travel, instead of working up the river ninety-six miles above Wheeling, and at so great a loss of time, would stop at the latter point, whence, in the average they could be conducted to *Baltimore* as soon as by the river they could be taken to *Pittsburg*. The committee entertain no doubt, that if the railroad should be completed to Wheeling, the trade and, if there be any, travel passing through the Ohio canals into the river between Pittsburg and Wheeling, would prefer dropping down to *Wheeling*, rather than encounter the delay of working up the stream to *Pittsburg*.

The committee are unwilling to quit this part of this subject, without calling the attention of the Board to the contrast which would be exhibited if, refusing to terminate their road at Wheeling, where they would engross the entire trade and travel without rivalry, if it were possible to force the western improvements and the contributions of the river to *Pittsburg*. At the latter point they would be in close and severe competition with the Central road to Philadelphia, for both passengers and tonnage at all seasons of the year, and of the fatal influence of such a competition upon the trade of this city and the income of the road, the committee need not stop to point out in detail. Its full extent will readily occur to an intelligent, impartial mind, who will take the trouble to reflect upon the subject. A single instance, however, may serve, in part, in illustration of the

mischiefs to which, in this connection, the committee have adverted. It is conclusively shown by the records of this company, and by those of the stage lines on the National road, that of the whole number of passengers coming from the Ohio by the road to *Baltimore*, at least *two thirds* are destined and proceed to Philadelphia and the north, without stopping in this city longer than to take a hurried meal. It then will be apparent, that if these and the expected increase should be forced to Pittsburg, they would naturally and unavoidably take the road to Philadelphia, where, by that line, they would arrive as soon and as cheap, as they could be brought to Baltimore, and in that way save the expense and time of travelling one hundred miles farther between the two cities.

It must be obvious, therefore, that, so far from increasing its travel under such circumstances, the Baltimore and Ohio railroad would lose at least two-thirds of that it now enjoys. If, on the other hand, our road should terminate at *Wheeling*, then allowing as an average of the year, fifteen hours to go by the river from *Wheeling* to *Pittsburg*, and it is believed to be less than the time actually consumed, the passenger by taking the railroad at *Wheeling* would arrive at Baltimore as soon as he could get to *Pittsburg*, and at Baltimore be within only one hundred instead of two hundred and thirty-seven miles of Philadelphia. He would have gained at least fifteen hours in time between Wheeling and Philadelphia, which would be more than sufficient to take him to New York! The same observation will apply, with proper allowance for time, to the trade and tonnage. It is obviously, therefore, the true policy of the company to arrest the trade and travel at *Wheeling*, instead of expending millions to force them to *Pittsburg*, to the fatal injury of the city, and the ruin of the road.

It would appear to the committee, therefore, that unless they have entirely mistaken the primary objects of the enterprise in which they are engaged, and greatly exaggerated the advantages of adopting a route free from competition with other cities, the expenditure of a much greater sum than the construction of the road to *Wheeling* will actually cost, would be fully warranted by the results to be expected from it. There would appear, however, to be a misapprehension of the actual cost of the route to *Wheeling*, as unaccountable as might be pointed out to have prevailed as to other parts of the subjects. It has been already shown, that the united energies of the Board, of the stockholders, and of the community have been for years exerted to terminate the road at a more southern point, for no greater advantage than, it is now seen, may be had at *Wheeling*, and that all interests would at any time have been satisfied with a terminus as low down as *Fishing creek*. Then, the actual cost of the road to *Fishing creek* with one track, is estimated by the engineer at the sum of \$5,240,250, and to *Parkersburg* \$6,690,000, and from neither point had we succeeded in reaching it, could we have counted upon any aid from *Wheeling*. The stockholders, however, at

their meeting on the 22d day of February last, authorized the acceptance of a law compelling the company to extend the road to *Wheeling* from the mouth of *Fishing creek*, with a substantial subscription from *Wheeling*, which would have swelled the entire cost of the road, by that route, to at least \$6,500,000.

Now the actual cost of the road to *Wheeling*, by the present law and arrangement with that city, according to estimates of the same engineer, will not exceed, with one track, \$5,900,000, and according to the estimate of another eminent engineer, will not be more than \$5,800,000; thus showing that the highest cost of the present route to *Wheeling* will be \$790,000 less than the road to *Parkersburg*, and \$600,000 less than the route preferred by the stockholders, to *Wheeling*, by the way of *Fishing creek*, and only \$659,750 more than the preferred route terminating at the mouth of *Fishing creek*!

But if the committee have succeeded in showing that all the advantages, and even more, as they believe they have done, are attainable by the route to *Wheeling* by the way of *Fish creek*, that could have been obtained from the route to the same point by the way of *Fishing creek*, then, by the route now recommended, the actual cost to the company will be at least \$600,000 less than by the former preferred route. Nor will it escape observation that, by taking the shorter route to *Wheeling*, by the way of *Fish creek*, instead of the longer and more expensive line by *Fishing creek*, the company have not only saved an actual outlay of \$600,000, but by receiving from *Wheeling* a contribution of \$500,000, and privileges supposed to be equal to \$50,000 more, the present proposed route to *Wheeling* will cost the company only \$109,750 more than they must have expended upon a route to *Fishing creek*, if they had made that their only terminus; from which, if the information now acquired can be relied upon, they could not have formed their western connection as certainly or as beneficially as they may from *Fish creek* and *Wheeling*.

It is to be added in this connection, that the cost of the proposed road, with one track, to *Wheeling*, is only \$900,000 more than the cost of the cheapest route to *Wheeling* through the State of Pennsylvania, under the old charter; and nearly \$700,000 less than the cost of that route added to the cost of the branch to *Pittsburg*, which the company consented to make for the privilege of terminating their main stem at *Wheeling*.

Without stopping here to institute a minute comparison between the route to *Wheeling* as now proposed, and that to *Pittsburg*, about the latter of which there is a material difference in the estimates of engineers, the committee content themselves with stating it as their opinion, from the best data in their power, that the actual cost of the road to *Wheeling* will not, under any circumstances, exceed that of the road to *Pittsburg* \$1,500,000; and if the lower estimates be found correct, or the cost of stocking a new road be taken into consideration, will most probably

little exceed a million of dollars. Assuming the largest estimated difference, the committee are of opinion, that in escaping from the severe competition with the rival roads of Pennsylvania, in the advantage of engrossing the whole trade and travel of central and southern Ohio and the States farther west, without rival, and in the largely increased trade and travel sure to be brought upon the road at *Wheeling*, the company would receive an equivalent far more than quintable any difference that will be found really to exist. The committee are, moreover, entirely persuaded that whatever might be expended upon a road to *Pittsburg*, would be given at most to equalize advantages between Baltimore and Philadelphia; whereas, by a terminus at *Wheeling*, they would engross the whole.

It has been no part of the duty of the committee to inquire into the means by which the road may be extended to the Ohio river, if the present law should be accepted. They are free to admit, that to raise the amount requisite for either will be a task of no light difficulty. They are to presume that this company and this community have not been engaged for twenty years in exertions to push their road to the best point on the Ohio river, without an earnest effort to accomplish the object; and that they will not now abandon the pursuit, when, for a sum less than that which in 1838 they undertook to procure, the right to finish the road is placed at the option. The committee are sensible, that whether the company should determine to make the road to *Wheeling* or to *Pittsburg*, neither could be accomplished without a liberal use of their credit; and they cannot doubt, that in aid of a road engrossing the unrivalled trade and travel, and general resources of the great west, they could use that credit to a greater extent and more efficiently, than for another of doubtful results, and doomed to struggle for any business whatever with other roads and other cities. Upon a road attracting the travel and trade of the west without competition, the committee cannot doubt that an immediate transportation, with a prospect of a large increase, of 400 passengers per day, in both directions, would be a reasonable estimate; and that number at \$10 per passenger, allowing the tonnage transportation to defray the expenses of working the road, would yield a net revenue of \$1,480,000 per annum, or nearly twelve per cent. upon the entire cost of the road from Baltimore to *Wheeling*. The committee do not deem it unreasonable to expect, therefore, that upon such a basis they would be able to invite capitalists to engage in the enterprise, and press it forward.

It has been shown, that besides the contribution from *Wheeling*, the actual cost of the road with one track, may be estimated at \$5,350,000. If the company should be successful, which, with the aid of a united community at home, and the co-operation of *Wheeling* in Virginia, they believe not improbable, and that commonwealth should make her usual contribution of 25 of the cost of the road in the State of Virginia, the bal-

ance would constitute a sum quite within the reasonable resources of the company. Even should that expectation fail, however, it would not be unreasonable to expect this community to co-operate, in the prosecution of an enterprise which, in the opinion of the committee, the more it is examined the stronger will its claims upon the cordial co-operation of this community appear.

The committee, therefore, believing that, under the present law and the arrangement concluded with *Wheeling*, the road may be prosecuted to the Ohio as advantageously as it could have been at any former period; and in all probability more so than if further time should be devoted to procure further grants from Virginia, have unanimously concurred in recommending the acceptance of the present law, and the ratification by this company of the agreement herewith submitted.

In conclusion, they propose, that the Board should convene the stockholders at the earliest practicable day, and recommend to their acceptance the recent act of the Virginia Legislature, and the ratification of the agreement with *Wheeling*.

T. PARKIN SCOTT,  
J. W. PATTERSON,  
SAM'L HOFFMAN,  
THOMAS SWANN,  
LOUIS McLANE.

To be continued.

#### Electric Telegraph.

We are indebted, says the London Mining Journal, to a correspondent for the following chronological history of the science of electricity—the discovery, and improvements made in it for the last 200 years, down to the magnificent and first successful adaptation of it to telegraphs, by Professor Morse, of the United States. No branch of experimental philosophy (our correspondent remarks) has been so much neglected as that of electricity; indeed, until the 17th century, little or nothing was known of it.—In the year

1600—Mr. Gilbert, of Colchester, published a treatise in Latin, of various experiments made by him; but his theory was very imperfect, though he increased the list of electric bodies, and also of substances, upon which electricity would act.

1630—Nicholas Caboens, at Ferrara, repeated the experiments made by Gilbert, and made some progress in adding to the list of electrics.

1670—Mr. Boyle made some discoveries which escaped the notice of his predecessors.

Otto Guericke, of Magdeburg, (inventor of the air-pump,) made some advances, and was the first to discover, that a body once attracted by an excited electric, was repelled by it, and not again attracted, until it had touched some other body.

Dr. Wall, about the same time, observed light and sound produced by rubbing pieces of amber with wool, and experienced a light shock.

1675—Sir Isaac Newton gave to the Royal Society an account of similar experiments made by him.

1709—Mr. Hauksbee distinguished himself by discoveries in electrical attraction, and repulsion of electric light. After his death, little was done for twenty years.

1728—Mr. Stephen Grey, a pensioner at the Charter House, and his friend, Mr. Wheeler, made a great variety of experiments, and discovered that electricity might be communicated from one body to another, even without those bodies being in contact.

1733—Du Fay, of France, repeated the experiments of Mr. Grey; but added little or nothing of his own.

1734—Mr. Grey made experiments upon iron rods, from whence came the term "metallic conductors."

1739—Dr. Desaguliers made several experiments.

1742—Mr. Boze, Professor at Wittenburg, and other Germans, made experiments. Mr. Winckler used a cushion, instead of the hand, to excite the globe. Mr. P. Gordon, a Benedictine monk, and professor of philosophy at Erford, was the first to use the cylinder, instead of the globe. With his machine, he conveyed the fluid along wires 200 ells in length, and killed birds. Dr. Ludolf, of Berlin, in 1744, made some experiments. Mr. Boze fired gunpowder by electricity. Mr. Gordon made the electric star. Mr. Winckler, by the agency of electricity, made a wheel to move.

1745—Mr. Collingson sent to Philadelphia an account with these experiments, with a tube, and directions how to use it.

Franklin, with some of his friends, immediately engaged in a course of experiments, the results of which are well known. He was enabled to make a number of important discoveries—proposing theories, accounting for various phenomena, which have been universally adopted, and bid fair to endure for ages.

Several experiments were made in Holland and Germany.

Dr. Miles, of England, fired phosphorus by the application of the excited tube itself, without the intervention of a conductor.

Dr. Watson fired air, made inflammable by a chemical process, and discharged a musket by the electric fluid. He made many other experiments.

Mr. Cuneus, of Leyden, made the discovery of the famous "Leyden phial;" and Mr. Von Kleist, dean of the cathedral of Camin, is said to have discovered it about the same time. By this discovery, electricity could be accumulated, and severe shocks given.

1746—M. Gralath gave a shock to 20 persons at once, and at a considerable distance from the machine. He constructed the electrical battery, by charging several phials at once. Mr. Winckler and Mr. Monnier, in France, transmitted the electric fluid through several feet of water, as a part of the circuit.



Mr. Nollet, in France, killed birds and fish by the discharge of the Leyden jars. Improvements were made by Dr. Watson and others in the Leyden phial, by coating the inside and outside of it with tin foil. The Abbe Nollet gave a shock to 180 of the guards, in the king's presence, and to the whole community of the grand convent of the Carthusians, in Paris, by means of wires between them, forming a line of 3,600 feet in length. The same experiment was tried in France, through a circuit of persons holding wires between them for 2½ miles. In another experiment, the water in the basin of the Tuilleries was made a part of the circuit.

Mr. Monnier, the younger, to discover the velocity of electricity, discharged the Leyden phial through an iron wire 4,000 feet in length, and another of 1,319 feet; but could not discover the time required for its passage.

1747—Franklin communicated his observations, in a series of letters, to his friend Collinson, and explained in a satisfactory manner the phenomena of the Leyden phial.

Dr. Watson, and others, conveyed the electric fluid across the Thames at Westminster bridge, making the width of the river a part of the circuit. He proved, that the ground also conducted the fluid, by an experiment with a wire 150 feet long, supported upon baked sticks, using the ground as half of the circuit. In another experiment, he made the dry ground a part of the circuit for a mile, and found it to conduct equally as well as water. The transmission of the electric fluid was instantaneous.

Mr. Ellicott constructed an electrometer for measuring the quantity of electricity; and Mr. Maimbury, of Edinburgh, electrified two myrtle trees in the month of October, and they put forth small branches and blossoms sooner than those which had not been electrified. The same experiment was tried upon seeds sown in garden pots, with the same success. Mr. Jallibert, Mr. Boze, and the Abbe Menon, at Angers, tried the same experiment upon plants, by electrifying bottles in which they were growing. They proved that electrified plants always grew faster, and had finer stems, leaves, and flowers, than those which were not electrified.

1748—Franklin and his friends held an *electrical feast* on the banks of the Schuylkill, near Philadelphia, which was amusing as well as scientific. He gives an account of it to his friend Collinson in these words:—"Chagrined a little, that we have hitherto been able to produce nothing in this way of use to mankind; and the hot weather coming on, when electrical experiments are not so agreeable, it is proposed to put an end to them for this season—somewhat humorously, in a party of pleasure, on the banks of the Schuylkill. Spirits, at

the same time, are to be fired by a spark sent from side to side through the river, without any other conductor than the water; an experiment which we some time since performed, to the amazement of many. A turkey is to be killed for our dinner by the *electric shock*, and roasted by the *electrical jack*, before a fire kindled by the *electrified bottle*; when the healths of all the famous electricians of England, Holland, France, and Germany, are to be drunk in *electrified bumpers*, under a discharge of guns from the *electrical battery*."

1749—Franklin first suggested his idea of explaining the phenomena of thunder gusts, and of the *aurora borealis*, upon electrical principles; and in

1752—He completed his grand discovery, by experiments. He constructed rods, and brought the lightning into his house to ascertain if it were of the positive or negative kind. He succeeded in the experiment for the first time in April, 1753; when it appeared, that the electricity was negative. On the 6th of June, he met with a cloud electrified positively. His discoveries roused the attention of all Europe, and many distinguished electricians repeated them with success.

Towards the end of the 18th century, the science was extended by numerous and useful experiments.

1787—Mr. Lomond, of France, invented the first electric telegraph of which we have any account. He communicated with a person in a neighboring chamber, by means of electricity; but it does not appear that it was used on extended lines.

1794—Reizen made use of the electric spark for telegraphic purposes, but never tested to any extent.

1798—Dr. Salva, of Madrid, made a similar telegraph to that of Reizen. No description of his plans have been seen, and probably were never given to the public.

Galvani, in 1790, and Volta, in 1800, made, as is well known, many important discoveries.

1809—Samuel Thomas Soemmering invented his voltaic electric telegraph.

1816—Bonald invented an electrical telegraph, and tried it at his house, Hamersmith.

1832—Professor Morse was the inventor of the electro magnetic telegraph, and the first really practicable telegraph on the electric principle. All the telegraphs in Europe are invented subsequently.

1833—The Baron Schilling, of Russia, constructed an electric telegraph, which was received with approbation by the emperor, who desired it established on a larger scale; but the death of the baron prevented it.

Counsellor Gauss and Professor William Weber constructed one.

1836—Taquin and Ettieyhausen made experiments with a telegraphic line over two streets in Vienna.

1837—Alfred Vail invented an electro magnetic printing telegraph.

Wheatstone made an electric needle telegraph.

Steinhilf, (Dr.) of Munich, erected between that city and Bogenhausen, a magneto electric telegraph. In the account he gives of his own telegraph, he says, that Belancourt established, in 1798, a communication from Madrid to Aranjuez, (26 miles,) by means of a wire, through which a Leyden jar used to be discharged, which was intended to be used as a telegraphic signal.

Maçon, professor of philosophy, at Caen, (France,) made trial of an electric needle telegraph, at the college of that city, for a distance of about 600 yards. He has since endeavored to simplify and improve his apparatus.

1837—Davy's needle and lamp telegraph.

1838—Mr. Amyot proposed in Paris to construct an electric telegraph.

Edward Davy—electric telegraph.

1840—Alexander Bain—electric printing telegraph.

1841—Wheatstone's rotating disc telegraph.

All the telegraphs—from Morse to Wheatstone—have several wires and needles; but the latest invention of House, with Jacob Brett's improvement, is indisputably the best of any yet discovered, and is the very perfection of a really printing telegraph, which, with one wire, conveys the letters themselves; and has also this immense advantage over all others—as the communication can be made without the intervention of a third person—that is to say, the parties themselves can carry on their own correspondence.

#### Lehigh Navigation Company.

We continue in this number of the Journal, the report of the managers of this company—giving their exhibit of its condition.

#### Summary of the Interest Account of the Lehigh Coal and Navigation Company, for the year 1846.

To charges to interest incidental to current business.....	\$10,592 98
To interest on judgments obtained prior to the general mortgage.....	3,008 20
To interest on mortgage loan, carried to the credit of the accounts of individuals taking coal.....	52,901 76
To common loan interest prior to Oct. 1, 1842, for which, under agreement, certificates of mortgage loan were issued.....	1,314 09
To purchase of common loan interest, convertible into cash if required..	58,935 23
To interest set off by certain holders of common loan against ground and water rents due by them to the company. The legal right of set off in these cases being sustained by opinion of company's counsel, the said interest claims were allowed in settlement of said rents.....	1,084 10
To interest account for 1847, for balance of interest due and unpaid, December 31, 1846, carried to account for ensuing year, viz:	
Arrears of int. on mortgage loan.....	\$12,009 67
Arrears of int. on common loan.....	891,198 04

903,207 71

\$1,031,044 07

By interest of account of 1845, for balance of interest unpaid December 31, 1845.....	\$757,161 57
By interest received in 1846.....	3,278 89
By balance carried to profit and loss account, January 1, 1847.....	270,603 61

\$1,031,004 07

### Profit and Loss Account of the Lehigh Coal and Navigation Company, for the year 1846.

Balance against profit and loss, January 1, 1847.....	\$37,976 83
Interest account for the year 1846.....	\$270,603 61
Repairs of Lehigh and Susquehanna railroad.....	4,237 18
Repairs of navigation.....	68,981 94
	343,872 73
Balance carried down to the credit of profit and loss, January 1, 1847.....	106,154 53
	\$488,004 09
Discount on debt extinguished.....	\$33,009 44
Ground rents, water rents, etc.....	24,191 17
Net profit on coal sold in 1846.....	198,131 88
Net tolls for 1846.....	232,671 60

\$488,044 09

Balance brought down to the credit of profit and loss, January 1, 1847..... \$106,154 53

The following exhibits a comparative view of the profits in 1843, 1844, 1845, and 1846, on the items of coal and tolls, and the amount of interest which fell due in each of those years:—

ON COAL AND TOLLS.			
1843.	1844.	1845.	1846.
218,498 51	289,711 45	337,939 70	430,803 48
INTEREST.			
304,608 94	298,197 85	278,923 47	270,603 61

### Summary for 1846.

Profits.....	\$488,004 09
Interest and repairs.....	343,872 73

Excess over interest and repairs..... \$144,131 36

Being an improvement, compared with the result of 1845, of \$88,646 51.

### Comparative Indebtedness of the Lehigh Coal and Navigation Company, January 1, 1846, and January 1, 1847.

	Jan. 1, 1846.	Jan. 1, 1847.	Increase.	Decrease.
Mortgage loan.....	\$921,760 69	\$923,074 76	\$1,314 09	
Common loans.....	3,722,721 01	3,688,922 16		33,798 85
Floating debt.....	4,614,481 78	4,611,996 94		32,484 84
Total.....	4,954,463 84	4,852,971 91		69,001 00
Arrears of interest, viz:				
On common loan.....	737,525 95	891,198 04	153,672 09	
On mortgage loan.....	19,635 62	12,009 67		7,625 95
Total.....	757,161 57	903,207 71	146,046 14	
Unpaid dividends.....	798 70	798 70		
Loans SUMMARY.				
Floating debt.....	4,614,481 78	4,611,996 94		32,484 84
Arrears of interest.....	309,976 06	540,974 97		69,001 09
Unpaid dividends.....	798 70	798 70		
Total.....	\$5,712,418 11	\$5,756,978 32		

The increase of \$1,314 09, in the mortgage loan above mentioned, arises from issues of said loan for that amount of interest, which accrued prior to October 1, 1842, on common loan.

The decrease of \$33,798 93, in the common loan above mentioned, is caused by the payment of the remaining judgments obtained on certificates of said loan prior to the execution of the general mortgage, 7th March, 1842.

NOTE.—The only loan of the company convertible into capital stock, is a portion, viz: \$196,509 39, of the mortgage loan.

### Summary of the Liabilities and Assets of the Lehigh Coal and Navigation Company—Jan. 1, 1841, to Jan. 1, 1847.

	Jan. 1, 1841.	Jan. 1, 1842.	Jan. 1, 1843.	Jan. 1, 1844.	Jan. 1, 1845.	Jan. 1, 1846.	Jan. 1, 1847.
<b>LIABILITIES.</b>							
Capital stock.....	\$1,503,550 00	\$1,503,550 00	\$1,503,550 00	\$1,503,550 00	\$1,503,550 00	\$1,503,550 00	\$1,503,550 00
Common loan.....	3,458,337 79	3,163,670 37	3,120,321 09	3,117,921 09	3,117,921 09	3,117,921 09	3,084,122 16
London bonds.....	604,800 00	604,800 00	604,800 00	604,800 00	604,800 00	604,800 00	604,800 00
Mortgage loan.....	400,688 49	479,847 77	521,821 85	448,023 34	440,581 67	309,976 06	923,074 78
Floating debt.....	1,032 95	798 70	798 70	798 70	798 70	798 70	240,974 97
Unpaid dividends.....	59,462 80	55,296 81	147,032 50	346,014 64	546,214 47	757,161 57	903,207 71
Arrears of interest.....	50,000 00	85,401 41	4,208 71	6,396,462 92	7,134,346 68	7,315,968 11	7,366,882 85
Contingent fund.....	208,210 86	6,498,678 73	6,735,524 10	4,455,066 31	4,455,000 00	4,455,000 00	1,360,923 75
Profit and loss.....	6,286,082 89	6,498,678 73	6,735,524 10	4,455,066 31	4,455,000 00	4,455,000 00	1,360,923 75
<b>ASSETS.</b>							
Canal and river improvements.....	3,773,648 85	4,123,827 46	4,415,973 71	4,455,066 31	4,455,000 00	4,455,000 00	4,455,000 00
Lehigh and Susquehanna railroad.....	1,119,188 66	1,193,399 91	1,238,457 58	1,282,233 09	1,326,701 80	1,342,206 71	1,360,923 75
Real estate cost of coal mine and other lands, railroads to the Old and Room Run mines, and other improvements, wharves and landings at Philadelphia, etc.....	694,238 65	641,926 45	649,707 66	657,610 23	719,903 14	831,684 39	1,006,051 71
Movable effects, debts due the company, bonds and mortgages, and other securities.....	610,560 41	497,125 99	489,598 36	462,416 19	534,934 06	489,656 01	499,891 81
Cash on hand.....	88,476 32	32,398 92	2,486 79	2,205 60	5,346 00	59,444 16	44,815 58
Balance against profit and loss account.....	6,286,082 89	6,498,678 73	6,735,524 10	6,859,721 42	7,040,785 00	7,777,921 28	7,366,882 85

\* A week after this date, viz., on the 8th of January, 1841, occurred the memorable and destructive flood in the Lehigh.

### STOCKHOLDER'S MEETING.

At the stated annual meeting of the stockholders of the LEHIGH COAL AND NAVIGATION COMPANY, held May 4th, 1847, THOMAS P. COPE, Chairman:

The Board of managers submitted a report and other documents, detailing the transactions of the year 1846, and exhibiting the condition of the company's affairs at the close of that year, and the same having been read, the following resolution was adopted, viz:

*Resolved*, That the report and accompanying documents just read, be approved, and that the Board of managers be requested to publish such portions thereof, as may be deemed expedient.

The following resolution was also adopted, viz:

*Resolved*, That this meeting hereby expresses its decided approval of the management of the affairs of the company, during the past year.

THOMAS P. COPE, Chairman.  
EDWIN WALTER, Secretary.

*Improved Method of Tempering Tools.*—Mr. Alfred V. Newton, of the Patent Office, Chancery Lane, has taken out a patent (being a communication) for an apparatus for hardening and tempering edge tools. For heating axes or other similar articles, a heating furnace is constructed in the form of a vertical cylinder, the exterior made of sheet iron lined with fire brick 4 ft. 8 in. diameter, or of such outside diameter as to give it an inside one of 4 ft. and 3 ft. high. In the interior of this cylinder, several fire chambers are formed, usually four; the inner wall of each fire chamber is 18 in. long, 4 in. from front to back, and about 4 in. in depth, forming, in the whole, a circle of 3 ft. 4 in. diameter; under each there are grate bars, and air is supplied through a pipe, connected with a blowing apparatus. A circular table of cast iron, 3 ft. 4 in. diameter, is made to revolve slowly on a level with the upper part of the said chambers; this table is sustained on a central shaft, which passes down through the furnace, and has its bearing in a step below it; a pulley keyed on to it serves to communicate rotary motion to the table. When the axes or other articles are to be heated, they are placed upon the table with their bits or steeled parts projecting so far over its edge as to bring them directly over the centre of the fire, and the table is kept slowly revolving during the whole time of heating. When duly heated, they are ready for the process of hardening. The hardening bath consists of a circular vat of salt water; within the tub or vat, a little above the surface of the liquid, is a wheel mounted horizontally, with a number of hooks around the periphery, upon which the axes or other articles are suspended; the height of the hooks from the surface of the liquid is such as to allow the steeled part only to be immersed; as soon as the hardening is effected, the articles are removed from the hooks, and cooled by dipping in cold water. With the best cast steel, a temperature of 510° Fahr. has been found to produce a good result in hardening in about 45 minutes.



## LOCOMOTIVE ENGINES.

The following description, and illustration, of "*Galloway's Improvements in Locomotive Engines*," was prepared for the first number for June of the Railroad Journal; but while the illustrations were in the hands of the engraver, the copy was mislaid, and thus the article has been delayed.

The mode of obtaining adhesion is so different from any now in use, that it may be well for it to be understood.

We find in the same number of the Civil Engineer and Architects Journal, a description, with illustrations, of Stephenson & Howe's three cylinder engine, which we shall endeavor to give in a subsequent number.

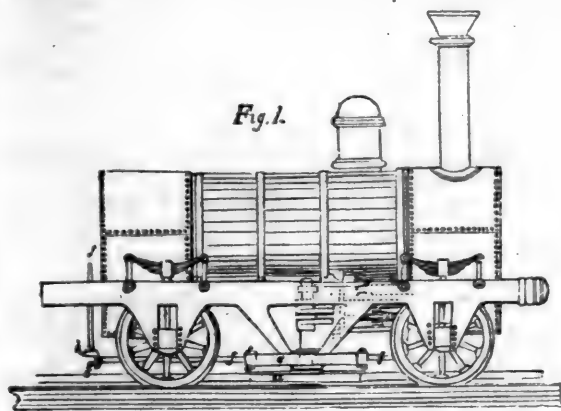


Fig. 1.

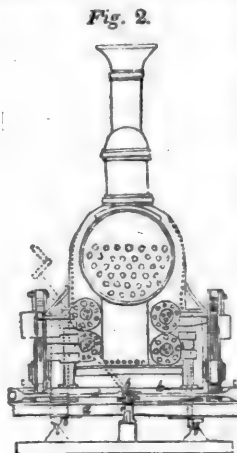


Fig. 2.

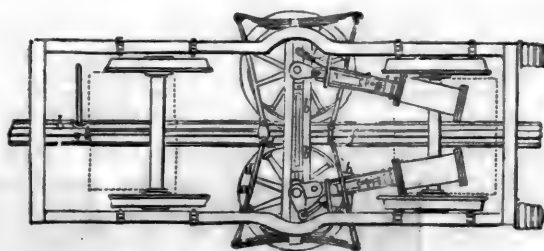


Fig. 3.

*Elijah Galloway, of Buckingham street, Strnd, Middlesex, engineer, for "Improvements in Locomotive Engines."—Granted April 18; Enrolled October 18, 1846.*

In constructing locomotive engines for railways, it has heretofore been usual to give motion to two or more of the wheels which carry the engine and it has been proposed to apply a central rail to a railway and to employ rollers on either side, pressed towards each other by a hand lever, and motion was communicated to one of them from the axis of two of the carrying wheels. Now one of the objects of this invention is no longer to use the carrying wheels as driving wheels. Another object of this invention is to apply the power employed to both of two wheels placed on either side of a central rail, and to obtain the requisite holding or bite on the central rail by causing such two driving wheels to be pressed towards each other, and consequently against the rail, by means of springs and apparatus suitably arranged for causing the two driving wheels (on each side of the central rail) to press the rail more or less, according as more or less holding to the rail is required from time to time.

The driving wheels of the locomotive engine, shown in the engraving, are applied horizontally on each side of a centre or middle rail, and are pressed towards each other by means of springs, the pressure of which can be regulated by adjusting screws, or by any other convenient means, so that they may be pressed towards each other with any degree of force the springs will admit of. The pressure, therefore, of these wheels is exerted simultaneously on each side of the middle rail. By such an arrangement it will be evident that the bite or adhesion necessary to propel the train is independent of the weight of the engine, and as the adhesion can be increased or diminished exactly according to the amount of force with which the driving wheels are pressed against the rail, this system obviates the slipping of the driving or propelling wheels upon the rail, heretofore consequent on making the driving wheels also carrying wheels in a locomotive engine.

Fig. 1, is a side elevation, and Fig. 2, a cross section of a locomotive engine, and Fig. 3, is a plan, with boiler and such parts omitted as would interfere with the view of the same. *a, a*, are the driving wheels worked by cranked axles. Each wheel is worked by a pair of cylinders, the one above the other, the pistons of which operate on the axis in much the same way as the engines of the present locomotive. The slide valves may be at either side of the cylinders, and worked by eccentrics placed on the axes. To secure the necessary bite on each side of the middle rail, the lower bearings of the axes are at

liberty to move for a limited distance horizontally, in mortices or slots for that purpose in the horizontal frame, *b, b*; these bearings are pressed towards each other by the springs *c, c*. To effect the desired adjustment of the pressure of the springs, the rods are connected to the centre pieces, *e, e*, one of which has a right and the other a left handed female screw through it, the threads of which fit the right and left handed screws on the rod, *f, f*. On one end of *f, f*, there is a bevel wheel *g*, working into another bevel wheel *h*, the axis of which is carried up in front of the fire box, as seen dotted in Fig. 3, and has a handle accessible to the engineer, so that the pressure of the springs on the driving axes, and consequently the bite of the driving wheels on the middle rail, can be adjusted at pleasure when the engine is in motion.

The claim is for the mode of giving motion to locomotive engines, whereby two actuated wheels, *a, a*, are used; and the causing of two wheels to be pressed towards each other and to a central rail.

**NOTICE TO CONTRACTORS.—ANDROS COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Railroad Office, in Lewiston, until the 17th of August next, inclusive, for the Grading and Masonry of the 2d Division of this Road, extending from Green to Belgrade, near Snow's Pond, about 20 miles.

Profiles will be ready for examination on and after the 10th of August, and all necessary information will be given, either at this office, or upon application to the resident engineers on the line of the road.

Satisfactory bonds with sureties shall be given by the bidders, if required.

On the 16th of August, the Engineer will be prepared to accompany Contractors over the line of the road, commencing at the eastern end of the Division in Belgrade.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office, Lewiston,  
July 13, 1847. }

3:31

**ATLANTIC AND ST. LAWRENCE RAILROAD.**—Notice to Contractors.—Proposals in writing will be received at the office of the Atlantic and St. Lawrence Railroad Company, in the city of Portland, until Tuesday, the tenth day of August next, inclusive, at sunset, for the grading, masonry, and bridging of that portion of their road extending from the termination of the second division near the hotel road in Danville, to a place in the vicinity of Norway and Paris cape, a distance of about 30 miles.

Maps, profiles, and specifications will be ready for examination on and after the second day of August next, at the Engineer's office in Portland, where all necessary information will be given.

The company will require, as one of the stipulations of the contract, that the heavier work on any section, shall be first attended to, so that the heavier and lighter work may be completed at nearly the same time.

Persons unknown to the officers of the company must accompany their bids with satisfactory evidence of their ability to execute the work. In all cases good and sufficient bonds with two or more sureties will be required for the faithful performance and fulfilment of the contract.

WM. P. PREBLE, President.

Portland, June 30, 1847.

3:38

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

New York.

1y10

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advancements on consignments to their address.

July 31—3m

ROBERT GRACIE.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 12 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:  
180 tons 24 x 1 inch Flat Punched Rails, 20 ft. long.  
25 " 24 x 1 " Flange Iron Rails.  
75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**THE SUBSCRIBERS ARE PREPARED TO**  
execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
JOHN A. ROEBLING, Civil Engineer,  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrestor recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.  
Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

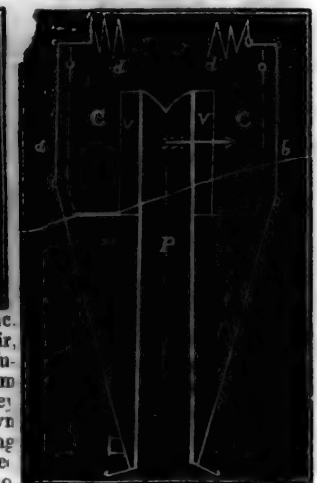
**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

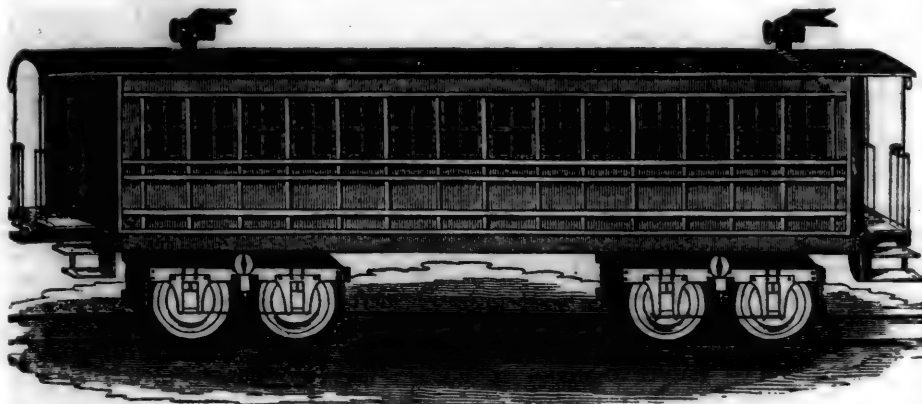
ROGERS, KETCHUM & GROSVENOR,  
Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10f

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,324 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33f

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

#### ENGINEERS' AND SURVEYERS'

#### INSTRUMENTS MADE BY

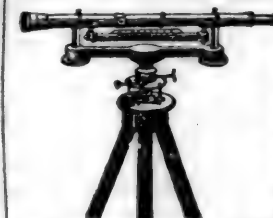
**EDMUND DRAPER,**

Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Road Depots, etc.

**ANDREW MENEELY.**

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**

12f

Vine St. Wharf, Philadelphia.

#### RAILROAD IRON.—THE "MONTOUR

Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

**MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

#### LAWRENCE'S ROSENDALE HYDRA-

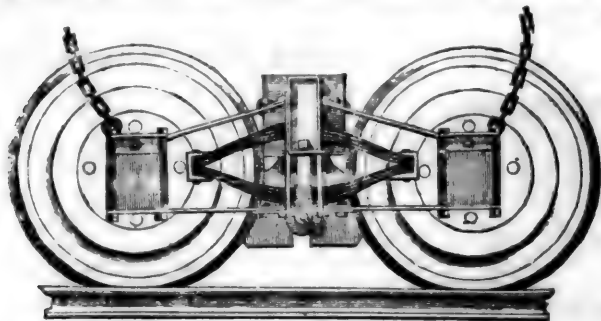
lic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,**

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**

75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.		LBS.	INCH.	
11	4½	13	5	10	24	-		50	15-16	20
13	3½	9	3	8½	16	-		27	11-16	13½
14	3½	6	11	7½	12	8		17	9-16	10½
15	2½	5	2	6½	9	4		18½	1-2	7½
16	2½	4	3	6	8	4		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y35

**THE SUBSCRIBERS, AGENTS FOR** the sale of

Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**

59 North Wharves,  
Philadelphia, Pa.

Jan. 14, 1846.

[1y4]

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

**DAVIS, BROOKS & CO.,**

Jan. 2.

[1tf]

68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROE, Sup't of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck has been in use on the Long Island railroad for the last year, under a freight car. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845.

**N. Jersey Railroad and Transp. Co.**

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,  
Jamaica November 12, 1845.

[Signed,] **JOHN LEACH,**

1y19 Sup' Motive Power

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for

some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
ja45 Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

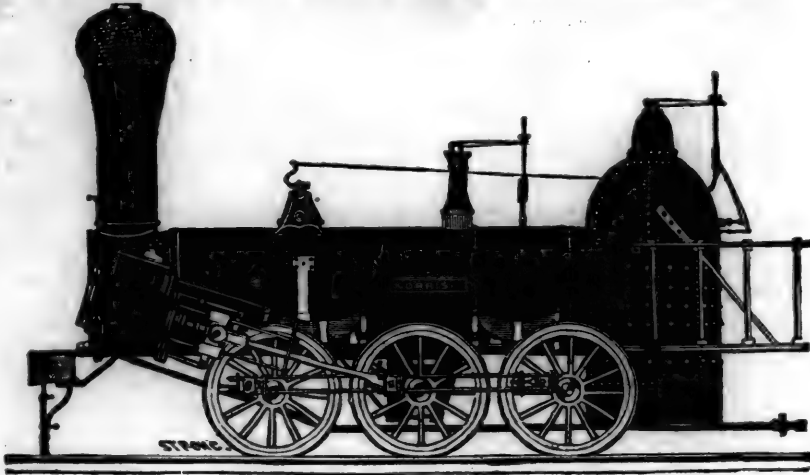
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10lf

**RAILWAY IRON.—DAVIS, BROOKS & Co.,** No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46lf



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worcester R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS, 48** State st., or to **CURTIS, LEAVENS & CO., 106** State st., Boston, or to **A. & G. RALSTON & Co.,** Philadelphia. ja45

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

**PATENT INDESTRUCTIBLE WATER**

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28f

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.** On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent.**





**LITTLE MIAMI RAILROAD.—OPEN**  
TO SPRINGFIELD—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows.

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freepport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	.....\$1 00
" " " Xenia	.....1 50
" " " Springfield	.....2 00
" " " Columbus	.....4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**  
Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/2 o'clock a.m.	12 1/4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/2 o'clock a.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

25th Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the

Great Western Mail leaves Baltimore every morning at 7 1/2 and Camden at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare, between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 313y1

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
Arrives at.....9 a.m. and 6 1/2 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 1/2 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m.  
Leaves Columbia for York at.....6 a.m. and 2 p.m.

**FARE.**

Fare to York	.....\$1 50
" Wrightsville	.....2 00
" Columbia	.....2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**  
Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN**  
Railroads, Ga.—These Roads with the

Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	.....190
Macon to Atlanta—Macon and Western	.....101
Atlanta to Oothcaloga—Western and Atlantic	.....80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	.....\$0 50	.....\$0 75
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	.....0 20	.....0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	.....0 20	pr. 100lbs. 35
Crockery, per cubic foot	.....0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion)	.....9 00	.....12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	.....1 25	.....1 50
Ploughs, (small,) and Wheelbarrows	.....0 80	.....1 05
Salt, per Liverpool Sack	.....0 70	.....0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally.....50 cts. per hundred.  
On measurement goods.....13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime).....80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**  
Passenger Train runs daily from Charleston,

on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50  
Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**  
line—direct. Via Newark, New Brunswick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4 1/2 " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25th

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50 and	\$3 00
" Reading,	58	2 25 and	1 90
" Pottsville	34	1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.

Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3 1/2 p.m. No line on Sun-

Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2

p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a con-

tinuous line, 408 miles in length, from Charleston

to Dalton (Cross Plains) in Murray county, Ga.—

32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton, 171 miles.	Between Charleston and Dalton, 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tarlow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack..	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows....	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton, F. C. ARMS,

Sup't. of Transportation.

Augusta, Ga., July 15, 1847.

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....	2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Bakers' Tubes, Silvers, Brooms and other light articles, per 100 lbs..	3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Castles, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.	4th class.—Flour, Bacon, (in cases or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Linseed Oil, per 100 lbs.....
Per 100 lbs.....	2 20	2 20	1 40
Per 100 lbs.....	1 40	1 35	1 35
Per 100 lbs.....	0 85	0 85	0 85
Per 100 lbs.....	1 00	1 05	1 10
Per 100 lbs.....	0 65	0 80	0 85
Per 100 lbs.....	0 90	0 85	0 61
Per 100 lbs.....	0 76	0 76	0 61
Per 100 lbs.....	0 86	0 86	0 61

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.; and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

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One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

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J. F. WINSLOW, Albany Iron and Nail Works

Troy, N. Y. (See Adv.)

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den, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Pat-

terson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morris-

town, N. J. (See Adv.)

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Adv.)

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MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stock-

bridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III., No. 33.]

SATURDAY, AUGUST 14, 1847.

[WHOLE No. 582, VOL. XX.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, August 14, 1847.

### Kennebec and Portland Railroad. Proposals to Contractors.

It is quite cheering to receive these notices so frequently—and from different sections of the country, also. It shows that the right spirit is abroad, and that the next five years will add immensely to the extent of American railroads.

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.** Proposals will be received at this office, and at the office of the Resident Engineer, in Gardiner, until the 21st of August, for the Grading and Masonry of 21 miles of this road, extending from Bowdoinham to Augusta.

The line of road and the place and profiles will be ready for examination on the 12th of August, after which time any information in relation to the work can be had at the engineer's office in Brunswick and Gardiner, or of the resident engineer on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to complete the work.

The remainder of the line from North Yarmouth to the depot of the Portland, Saco and Portsmouth Railroad in Portland, 15 miles, will be ready for contract on the 18th of September, at which due notice will be given. **GEORGE S. GREENE,**

Engineer K. & P. R. R.

ENGINEER'S OFFICE, K. & P. R. R.  
Brunswick, July, 12, 1847. } 233

### Railroad to Cambridge.

A meeting was held at Cambridge on Thursday evening, on the subject of a branch railroad from the Fitchburg road (at the Lowell crossing,) through the city of Cambridge to the Worcester road—thus to connect the Worcester, Lowell, Maine, and Fitchburg roads. The Mayor presided and addressed the meeting, as did also Hon. Isaac Livermore. A committee was appointed to procure a survey, and

to confer with the Grand Junction railroad company. The meeting was adjourned to the first Thursday in September.

Thus will it be throughout all New England. Cross roads and branch roads will connect, and intersect, the main lines, until every town of any considerable importance has its railway facilities.

### Georgia Railroad and Banking Co.

We have received the following correction of an error, and give it a place of course. It was from the fact that the dividend alluded to was so much larger than the preceding ones, that we supposed it to be an error of the printer—but we are pleased to learn that it was correct. The writer says:

"In No. 30 of your Journal—in a note appended to the statement of dividends declared on the stock of the Georgia Railroad and Banking Company—you say, in reference to dividend No. 9, \$220,161 20. 'This is evidently an error.' There is no error, the dividend being *ten per cent.* on a capital stock of \$2,201,612. Please correct.

"You will see a statement of the *No. of Cars* belonging to the company in the first part of Engineer's Report. Would it not be well for you to make a requisition for the number of *locomotives* owned by each railroad company in the United States, as well as the number of cars, and add a column for each to your 'Table of Railroads'?"

In accordance with the suggestion of the writer, Mr. F. C. Arms, Superintendent of the Georgia road, we now call upon all the railroad companies for a statement of the number of cars and locomotives owned by each—and promise, if we receive them, to add them to our next edition of the Table of Railroads.

### Telegraph System.

To the Editor of the Railroad Journal:

Sir: Mr. Amos Kendall states, in an article published in your Journal of 12th June last, that "you are in error where you say that some two or three, or a small number of individuals, of whom Mr. Kendall is a copartner and agent, owning under this system *one-half* the stock, have the absolute control of all the telegraphs in the United States, with the power of taxing, to any extent, the transmission of intelligence, however imperfectly the duty may be performed."

In regard to the first part, the writer of this knows that Mr. Kendall has exercised *absolute control* of the line between Washington city and New York, by

his voting the stock held by himself and the patentees, against a majority of that represented by the stockholders who furnished the means to construct the line; although he says in the article above referred to, that they "cheerfully yield the management to the other stockholders." He further says that "the preponderance in the company, (that is the New York and Washington company) which has honored him with its presidency, has been largely augmented by the sale of one-fourth of the patentees' stock, and their power now, in the vote of that company, is but as seven to twenty, and no more." Now it is well known that at the meeting of the above company, held in this city during July last, for the purpose of electing officers, that Mr. Amos Kendall voted 522 shares of 1096 shares of the stock voted; of this amount nearly 300 shares are held by Mr. Kendall, the agent of the patentees, and which is nearly *one-third* of the stock voted at that meeting; besides this, he voted by proxy all the stock belonging to Professors Morse & Gale, and Mr. Vail, who are interested in the patent right.—You will therefore perceive, that Mr. Kendall voted in his own name, and in behalf of the patentees, nearly *one-half* of the whole stock voted at the last meeting of the Magnetic Telegraph Company.

This alone was enough to elect his candidate, Mr. French, by a majority of 155 votes over the stockholders' candidate, Mr. Hart.

The stock voted by the New York and Washington stockholders for Mr. French, amounted to 207 votes, and if Mr. Kendall had left it with the stockholders, and "yielded the management to them," their candidate, Mr. Hart, would have been elected by a majority of 160 votes.

This proves that no dependence can be placed in Mr. Kendall's statement, and that they do not "yield the management to the stockholders" who furnished them with means to build the first line of telegraph ever constructed in this country by private enterprise.

A line is now in course of construction between Washington city and New Orleans; and a writer in the Charleston Mercury cautions persons against investing their money in it, as the patentees receive half the stock of that company, and therefore have the control and management of its affairs. He also states that the election of officers, etc., would be in the hands of the patentees, (who do not furnish the means) and therefore they would be at the mercy of the owners of Morse's patent.

The proceedings in this city, and the ground taken by Mr. Kendall, conclusively prove, that you were correct in your statements, although Mr. Kendall denies that they would ever exercise such power. Subscribers have also urged this as an objection to taking the stock.

It is hoped that the stockholders south will profit by the experience of the stockholders of the New York and Washington line of telegraph; and act with a view of restricting Mr. Kendall's monopolizing propensities.

#### A STOCKHOLDER.

We give place to the preceding communication, from "A Stockholder," for the purpose of eliciting from Mr. Kendall an explanation of the course pursued by him at the late election in this city, for officers of the New York and Washington Telegraph Company.

In our remarks on this subject, in the Journal of the 10th April, we took the ground that a few men—and those *not* the ones who furnished the capital to put up the different lines—would have the *entire* control of the system; and objected to the present plan of management on that account. In reply to these remarks we published, on the 12th June, Mr. Kendall's letter, denying the statements made by us. He says in reply, that "you (we) are equally in error when you say that it has become a monopoly of the closest kind, and threatens to be one of monstrous character," etc.; and he further says that "no stockholder, under the articles of association, can give over *one-sixth* of the aggregate vote. This restriction reduces the power of the patentees far below one-half—even where they hold one-half the stock—and gives the other stockholders a preponderance equal to *sixteen against four*." Yet, with all this preponderance, we see the apprehensions expressed by us on 10th April verified at the first election following, which took place in July.

We have heard of the unexpected result of that election—and of the means by which that result was brought about; but did not choose to speak of it until we had the authority of some one who knew, and was responsible for what he might say—and having such authority for the preceding, we do not hesitate to give it a place, and again to express our belief that the present system of management will never be satisfactory to the people of this country, and that rival lines will be established.

A Railroad Spark Conductor has been introduced by Dr. Flagg, of Boston—a funnel attached to the locomotive chimney, so connected with tubes along the train as to conduct smoke and sparks to the rear.

#### Nashville and Chattanooga Railroad.

We find the following letter, from V. K. STEVENSON, Esq., of Nashville, in the Charleston Mercury, of 4th inst. The writer appreciates fully the importance of early and vigorous efforts in favor of this important work—and he holds up to view *some* of the more prominent advantages which are sure to result from the construction of a railroad from Nashville to connect with the Georgia railroads—thus opening, on its completion, two avenues to tide water, viz: Charleston and Savannah—and at no distant day at two other points, viz: *Apalachicola* and *Mobile*; thus giving to the people of Tennessee, Kentucky, Ohio, Indiana and Illinois, a direct, easy and cheap communication with the interior, and outlets of these four southern States. It is indeed difficult for any person, who has not thoroughly studied the subject, to appreciate it justly. This link in the chain—or rather thread in the web, when

extended to Louisville, or the Ohio river, as it surely will be—will be found more important than any other *one* of the numerous works in the connection, for the reason that it will be the *connecting link* between the two extremes, which may be said to form, each by itself, a complete system of railroads. It will enable the southern *Atlantic*, and the northern *Lake States*, to communicate directly with each other, instead of the present circuitous route by *New York*, or *New Orleans*. By this route it can be done in fewer *hours* than it now requires *days*!

We give the letter of Mr. S., and express the hope that the people of Charleston and Savannah, of Macon and Augusta, and indeed of South Carolina and Georgia, will meet the question with enlightened views and liberal hands. The editor of the *Mercury* takes the right view of the matter, and says:

"We have been favored for publication with the letter which appears below; and to the importance of the enterprise of which it speaks, we invite particular attention. Now that the Western and Atlantic road has reached Dalton, and is in progress of completion to its terminus at Chattanooga, it is time that Georgia and South Carolina should awaken to the means necessary to extend it to Nashville; and from thence, as proposed, to Louisville and Cairo, at the junction of the Mississippi and Ohio. These States are equally interested; and surely the Central and the Macon and Western, the Georgia and South Carolina railroads, with the cities of Savannah, Macon, Augusta and Charleston, may make up the deficiency of subscription mentioned in the letter from Nashville. That city, with a population not exceeding 10,000 inhabitants, has set a noble example to her sister cities of Savannah and Charleston on the Atlantic; and we are pleased to see the suggestion in our papers that contributions to railroads be made a test question at our next elections."

NASHVILLE, TENN., July 25, 1847.

DEAR SIR: Since receiving your highly esteemed letter of 22d June, our city corporation have agreed to become stockholders to the amount of half a million of dollars in the Nashville and Chattanooga railroad company, to this we have about sixty thousand dollars of private subscribers. Our board of commissioners have since met and appointed Gov. Jones and myself agents to procure subscriptions, and we will commence on the 6th of August, I think, with good prospects to get a million more in Tennessee from private subscribers. This will require an immense effort, and if we should be successful we think we will have given you sufficient evidence of our earnestness and faith, and we hope then to be able to call on South Carolina, where the next greatest interest lies, with certainty of aid in the way of a subscription from her and Georgia to the amount of three millions of dollars. I hope and feel that we will not be disappointed; if so, or I thought so; I for one would lay down my books and quit the work, for we cannot get more than the million and a half, and I would not be willing to strike a lick upon the road with less stock taken than two and a half millions.—Please give your opinion upon this subject, for we are working in the dark.

Louisville has obtained a railroad charter, as I am told, to the Tennessee line; and wish so soon as we start to get Tennessee to give them a charter to Nashville, so as to reach your market with their immense products.—

Cincinnati is also anxious to build the road to Louisville. Evansville, Indiana, pressing forward to get a charter to cross western Kentucky to Nashville with a railroad also to get to your market. In fact, the whole west is looking to connections at Nashville to get the advantages of the southern market and seaports. The president of the Cairo company, now renewed and in wealthy hands, addressed me a long letter a few days since, regarding the Central railroad from Cairo to Springfield, Illinois, there to connect with the Cincinnati and St. Louis railroad, and thence across the same to Galena, the heart of the great mining country; thus the Nashville and Chattanooga railroad he thinks will be of great advantage to the Central railroad of Illinois and to the city of Cairo. The goods brought from New York for the great valley he thinks will all come this way for all points below Louisville, Kentucky, and be distributed for the lower valley at Cairo, and sent from Illinois by the Central railroad from Cairo.

Our coal fields, reaching from below Chattanooga to a point 85 miles from Nashville, will be a source of great profit to the road, and to your Georgia and South Carolina roads; for at the rate charged for carriage by the Baltimore and Ohio railroad, coal can be taken to Charleston much cheaper than you are now paying for the same quality of coal, and to Nashville for little over one-third of what we are now paying for it. I understand that there are gradients of 80 feet to the mile on the Baltimore and Ohio road, too, which is heavier than any on these roads. Iron also abounds in the vicinity of our road, and in the same hills with the coal. The finest varieties of marble also is to be had in any quantity on the line of the road. The coal hangs over the road at different points in passing down the Tennessee river, and up Crow creek for 60 miles.

I shall be pleased to hear from you upon this important subject. Truly,

V. K. STEVENSON.

Col. JAMES GADSDEN, Charleston, S. C.

We shall publish, at an early day, a well written article, from the *Augusta Chronicle*, signed "Georgia," which gives many important and interesting facts in relation to the country around Chattanooga, and of its business, and business facilities, which ought to be more generally known and appreciated.

#### Interest on Instalments.

The question has been often asked us "how can a railroad company pay interest on instalments, before the road is completed." The "*how*" was never very difficult for us to understand, any more than for an individual to pay interest on a loan of capital to carry on any manufacturing or commercial business—yet we may not have been able to explain the matter to inquirers as clearly as we find it done to our hand in "*Heraclitus's Railway Journal* of 29th of May last—from which we make the following extracts, viz:

The editor says "one of the questions to be brought before them is the paying of interest on calls. It has been recommended by some of the wise heads of the House that this should be abolished. Now, though no immediate connexion appears between the paying of interest and the success of the new lines, it is really and truly the marrow of



their existence and success, and the chairmen who form part of the chancellor's committee, know it. We will take, for our example, the London and York. It is well known that the shares of this line are spread out to an almost indefinite extent. They are not in large, but small holdings—the very best holdings that a line can have. We have heard of there being as many as 10,000 shareholders in this line. Most of these people have taken the shares on the belief that they will form a good and profitable investment, and as by the act 5 per cent. interest is allowed, they have in large numbers withdrawn their all from the funds and other securities, and paid up in full in the London and York. It is difficult to say to what extent their prepayments are made, but we have heard, to some hundreds of thousands already. Deprive these people of their interest, and what do you do, but reduce them to beggary, or oblige them to sell at a ruinous loss? Upon the faith of the act of Parliament, they invested their money, and should that now be interfered with? Upon no principle of honor or honesty can it be."

Again he says "Let us take a case mentioned to us the other day. A person, a lady if you please, for in this our gallant country, ladies' cases always command a preference, suppose has £2,000, which at 5 per cent. would bring her in £100 per annum. She is advised that a certain railway will be a good investment, but it pays no interest, and will take four years in making, while there is another equally good that will pay 5 per cent. during construction, and like the other, will yield the limited ten per cent. afterwards, can there be any doubt which she will take? She sees immediately that the former, as she must live and eat during the time of construction, will reduce her capital from £2,000 to £1,800, supposing the calls made uniformly, and of course she rejects it; but, in the other she says, "Oh! it is a good concern, I'll then have the whole of my money at once, to save fluctuations in the funds, and the trouble of attending to the calls." She does. Others do the same, and instead of four years, the line is made in three, and made at least ten per cent. cheaper, because the funds are in hand. So, in fact, the whole £300 interest paid out to the lady, is saved, and she gets her ten per cent. dividend one year earlier. But we will give "the sum total of the whole" in figures, for Mr. Joseph Hume's benefit, as we believe he professed to be horrified at the interest-paying affair.

"If the money is paid in advance, the company can get, at any time, one per cent. from the bankers less than the usual rate of interest; but, let us suppose it is two per cent. less. Then the account stands thus:

Advanced .....	£2,000
Deduct interest at five for three years .....	£300
Less interest at three per cent. for half the time .....	90
	210

Cost of the works .....

"On the other hand, if no interest is allowed, the calls will be badly paid; money will be short; the line will take at least a year longer to make, and for want of the needful will cost, as before observed, ten per cent. more. Then it will be thus:

Calls paid .....	£2,000
Ten per cent. extra cost .....	900
Loss of interest for half the time, or 3 years .....	150

Total amount to shareholder .....

"So that here is £140 on the cost of construction in favor of the interest system. But, besides that, the lady, at the end of the four years, has received one year's dividend, or ten per cent., while the other has received none. Deducting half for the interest,—that makes £100 more. Add this to the £140; and at the end of four years the lady is no less than £240 better off than the no interest line, besides £140 capital being saved to the public, which, at ten per cent., will be £14 a year in the pockets of the public in reduction of fares, and not a sixpence detriment to the shareholder.

"We really wish some of our Legislators would make themselves better acquainted with practical matters before they go theorizing on subjects they do not understand. Philosophers of old committed just the same blunders in science these men make in business; and it was not until they were taught

that experiment was the test and touchstone that they made any progress in useful knowledge. We strongly urge some of our M.P.s to go to the same school, and not before they have made themselves proficient, to meddle with subjects which, with all due deference, we say, they do not understand."

The advice of the able editor, given in the closing paragraph may be as useful to other Legislators as to M.P.s.

#### Railroad Connection.

The following account of a meeting in relation to a connecting link between the "Central" and "Georgia" railroads is from the Savannah Republican of July 26th.

**Railroad Meeting in Hancock.**—On the 23d inst., according to previous notice, the citizens of Hancock county held their railroad convention at Sparta. R. P. Sarsnet, Esq., was called to the chair, and Mr. Johnson was appointed secretary.

The chairman explained the object of the convention, and Judge Thomas, after some remarks, called out Judge Andrews, of Wilkes, who entered into a detailed statement of the advantages and certain profits of the proposed road. R. R. Cuyler, Esq., the president of the Central railroad, then addressed the meeting at some length. He was followed by the Hon. R. Toombs, who made a most eloquent and statesmanlike speech, informing the meeting that Wilkes county was pledged to subscribe \$200,000 cash towards the proposed road, and calling for a cash subscription on the part of Hancock of \$100,000. This was responded to on the spot by a subscription of near \$60,000, and not a doubt is entertained that the amount can be easily made up. In addition to these subscriptions, we learn that further subscriptions will be secured in Taliaferro and Washington. Savannah will be called upon to make up the deficit.—A subscription of \$100,000 on the part of the railroad will leave \$100,000 to be made up by citizens. *It cannot, it will not be,* that the people of Savannah will stand still and fold their arms in view of this new avenue to prosperity. An avenue so sure to return to us almost immediately, all that is paid out, whether by the Central road or by stockholders. Accurate returns made, show that the business of this road must at the very beginning, amount to more than \$100,000 per annum, and every stockholder will be interested in its welfare.

The assumed cost is \$500,000, or perhaps with its equipment rather more. Allowing the most extravagant estimate for the expense of running and repairs—this will pay back 7 per cent. interest, and leave an annual surplus of 15, or \$20,000.

Savannah has her part to perform. Will her citizens forget every cause of local disunion and dissatisfaction, and come forward to the work? There are no words, there is no declamation to be expended here. Action—action—are the requisites. Here is an object before which the most cherished of our individual projects

"Loses discountenance, and like folly shows."

The proposed railroad communication will intersect the Central railroad perhaps at Tennille, or, say 135 miles from Savannah.—From Tennille to Cumming, the point of its

intersection with the Georgia railroad, is 45 miles, from Cumming to Atlanta 113. Total distance from Savannah to Atlanta, 393 miles, against 292 miles via Macon and the Macon and Western road. If, however, (which is not improbable,) the point of intersection with the Central road be at Hardwick's which is some 13 miles nearer Savannah, the whole distance to Atlanta will be shorter by at least eight miles than by way of Macon, and that, too, without increasing the distance between the two roads more than two or three miles.

We need hardly add to this brief account of the proceedings in Hancock that the meeting was a large one, and the determination just such as our fellow citizens ought to have been present to have witnessed. We have been seeking a connection with Augusta and the Georgia railroad. The resolute action and the firm State feeling of our brethren in Wilkes and Hancock have pointed out the route—upon the result will depend whether Georgia is to be indeed the "Lion" of the south, or whether she shall only develop her resources for the advantage of Charleston. Such is the plain—the direct—the undeniable issue involved; and it need not be blinked.

#### Louisville and Frankfort Railroad.

A sufficient sum having been subscribed, says the Frankfort Commonwealth, of July 27th, an organization of this company by the election of six directors, will take place in Louisville on the 14th day of August. As soon as the organization is complete, proper surveys and estimates will be made, and gentlemen who are disposed to encourage the enterprise will be able to act understandingly.

It is useless for us to say anything by way of argument, to prove that the road is needed. That it is needed, is conceded by all. Kentucky, with the best soil in the world, is unable even now to compete with her more enterprising neighbors in the markets on the Ohio and Indiana border of the State. The facilities for transportation which Ohio enterprise has given to the people of that State, give them advantages that are incalculable. Indiana, too, is rapidly increasing her wealth and importance by the construction of railroads and canals. Kentucky alone seems to have forgotten herself in the general march of improvement. Central Kentucky is very deeply interested in the railroad to Louisville. The counties through which it is destined to pass, we are gratified to learn, are taking a lively interest in its success. And well they may; for upon the construction of the road depends in a great measure the value of their possessions. The only reason why land in Henry and Oldham and Shelby is less valuable than that in the immediate vicinity of Louisville, is, that the owner of the former has no market for his surplus, while the latter has a market at his door. The railroad, if constructed, will bring a good market within reach of every man on or within any reasonable distance of the route.

As soon as the company is organized, we will lay before our readers a statement of the probable cost of the road: and we hope that

the citizens in the interior will, in the mean time, reflect upon the undertaking, and will lend a helping hand. The city of Louisville will, we are assured, do her part towards the completion of the road. It is for the counties along the line, and those interested in the interior, to determine whether the road shall progress or shall fail.

We are pleased to learn that efforts are about to be made to complete this road to Louisville. It ought long since to have been done. It is not yet too late, however, if the people of Louisville, along its line, and at, and beyond Frankfort, will do their duty; or consult their own interest.

We should regret deeply, on account of the completion of this work—if there were no other grounds for regret—the death of the gallant and high-minded McKee. He looked forward to its completion at an early day, with confidence and pleasure; but other duties called him away from its management, and he now sleeps quietly beneath the green sod of his own beloved Kentucky, though he nobly fell far, far away.

#### Richmond and Ohio Railroad.

The following account of the proceedings of a meeting recently held at Lynchburg, Va., are from the *Virginian*, published at that place. From this we infer that the people of Lynchburg and its vicinity are moving with the right spirit in favor of this important work—and well they may, as it will open to them, when it shall be completed, a new world of business, and give new life and increased wealth to the Old Dominion. It is well said in the preamble, that "the time for action, UNITED AND VIGOROUS, has arrived;" and it becomes the people of Virginia now to move in a body, to ensure the opening of this work at the earliest possible period.

At a meeting of the citizens of Lynchburg, friendly to the Richmond and Ohio railroad, convened at the Universalist Church, on the 24th day of July, 1847, Mr. Richard G. Morris was called to the chair, and William T. Yancey appointed secretary.

The meeting was ably and efficiently addressed by Messrs. James Garland, Francis B. Deane, Jr., R. J. Davis, and Gen. Peter C. Johnson, of Abington, and the following preamble and resolutions, offered by Mr. R. J. Davis, were unanimously adopted.

Whereas this meeting is fully impressed with the belief that nature has marked out, through the heart of central Virginia, the line of a great thoroughfare for a large portion of the commerce of the west—an opinion founded on facts which cannot be controverted, among which are the following: that the distance, from the centre of production in the valley of the Mississippi, to the Atlantic coast, and to the great centre of commerce of the Atlantic States, along that line, is less than any other route; that the highest elevation to be overcome upon it, as also the general inclination of its ascending and descending planes, is also less than any other line which approximates it in distance; that all the materials necessary for the construction of such a thoroughfare exist everywhere along its route in the greatest abundance, so as to admit of its construction on the most favorable terms; that the climate of the region which it traverses is so mild as scarcely ever to afford any obstruction to the transportation of

passengers or freight, and that such a thoroughfare, if a railway, may not only be made unbroken and continuous through the limits of Virginia, but may be extended from its western terminus on the Ohio upon the same parallel of latitude, in an unbroken and continuous line, to the city of St. Louis.—Therefore, the construction of a great thoroughfare, along the line so marked out, is demanded not only by Virginia, for the purpose of unfolding her internal resources, but also by the union for the purpose of affording an outlet to the growing commerce of the west, and enabling the United States to supply the foreign demand for their agricultural productions.

And whereas, the united testimony and experience of the great States of Europe and America has conclusively tested the adequacy of iron railways to subserve the great interests of commerce, agriculture and manufactures, and the charter of the Richmond and Ohio railroad, well matured, liberal in all its provisions, and broad and comprehensive in its design, providing for the construction of a road through a region of Virginia, rich in agricultural and mineral resources, and admitting of its connection with a feeder, of moderate length, to the still greater agricultural and mineral treasures of the southwest, affords a favorable opportunity for establishing, on the line so designated, a thoroughfare in all respects commensurate with the great objects in view.

And whereas, this meeting is also deeply impressed with the conviction that the time for action, UNITED AND VIGOROUS, has arrived—that the golden moment is now present, when the most energetic steps should be taken, not only because the time fixed by the charter for the commencement of the work is passing away; and not only on account of the tendency of other works in Virginia to divert attention from the great scheme, and the Herculean efforts of the Atlantic States to wrest from Virginia the commerce of the west; but also for the purpose of arresting the attention of the projectors of the great railway extension from St. Louis, through the valley of the west to the Ohio, in order that we may induce them to co-operate with us, and unite that great improvement with the Richmond and Ohio road.

And whereas, books of subscription to the stock of the proposed road have already been opened, and a large amount subscribed, and consequences very detrimental to the success of the work would be produced if the efforts of its friends should now be relaxed, and this meeting is also of opinion that, if strenuous exertions should now be made along the line of the proposed improvement, and the people aroused to a sense of its importance, and the prospects of its success, and the danger of inaction, the charter could be secured; and finally, as this meeting is further of opinion that a convention of delegates, from the several counties interested in the work, to assemble at this place, at as early a day as would be convenient, for the purpose of taking the whole subject into consideration, and encouraging subscriptions to the stock, and further-

ing the success of the work, would materially promote the great objects in view,

1st. Resolved, That the counties along the railroad proposed to be constructed from Richmond to the Ohio river, and other adjoining counties desiring to promote its construction, be, and they are hereby invited to appoint delegates to a convention to be held in the town of Lynchburg, on the 22d day of September next, for the purpose of taking the subject into consideration, and adopting such measures as to them shall seem advisable, for promoting subscriptions to the stock, and securing the success of the work.

2. Resolved, That Francis B. Deane, Jr., Richard K. Cralle, Robert, J. Davis, Wm. M. Blackford, Robert H. Glass, James Garland, John Wills, Benjamin F. Sackett, Robert H. Gray, Adolphus D. Read, Richard G. Morris and Wm. T. Yancey, be appointed a committee, whose duty it shall be to correspond with persons residing in the counties in the foregoing resolutions mentioned, and in the seaport towns, in order to direct their attention to the importance of the work, and to interest them in procuring the appointment of delegates to the proposed convention, and also to collect such information as they can, in reference to the products and minerals of these counties, the disposition of the people as to the construction of the road, and on any other topics which are calculated to advance that object.

3. Resolved, That Maurice Langhorne, Jr., Henry Davis, Pleasant Partin, Paul Jones, James M. Langhorne, Robt. H. Gray, Wilson P. Bryant, Daniel I. Warwick, W. B. Averett, John W. Dudley, Wm. S. Reid, Jr., and Col. Wm. B. Brown, be appointed a committee to provide a suitable place for the sittings of the convention, and also to provide for the reception and entertainment of such delegates as shall attend it.

Resolved, That the Lynchburg, Richmond, Fincastle, Wytheville, Charlestown, (Va.,) and Jonesborough, (Penn.,) papers, be hereby particularly requested to publish the proceedings of this meeting.

And the meeting then adjourned.

RICHARD G. MORRIS, Pres't.  
W. T. YANCEY, Sec'y.

We have heretofore taken ground for the commencement of the work at Lynchburg, and its construction westward from that point by sections, thus making it tributary, until its completion to the Ohio, to the James river canal—upon which so much capital has been expended by the State. This course would ensure to the canal an amount of business which it can never have without the railroad—and the company would accomplish the greatest amount of good with the least outlay of capital—and this part of the road, when completed, will ensure the construction of the work from Lynchburg to Richmond.

Of the importance of a railroad from the Ohio, through the southern part of the State, to tide water, at Richmond, or elsewhere, we presume there is no difference of opinion in Virginia—there certainly is none in our mind; yet we can well imagine that it will be somewhat difficult to raise within the State the capital required. It is however highly important—we must be allowed to assure the people of the



State, and of Richmond and Lynchburg in particular—that a good commencement be made by them before they can expect capitalists from abroad to invest largely in the work—it *must be commenced in Virginia*—then others will invest, if, as is intimated by an eminent engineer, the charter is made acceptable to capitalists.

We have been furnished with a copy of a correspondence between F. B. Deane, Jr., Esq., of Lynchburg, and Moncure Robinson, Esq., the gentleman above referred to, and we take the liberty of republishing nearly the whole of Mr. Robinson's letter, for the purpose of sustaining our own views in relation to its connection with the canal at Lynchburg or its vicinity, as well as for the purpose of laying the views of that gentleman, in relation to this work, before our readers. Mr. Robinson says:

It is evident whatever route may be taken by such a railroad, that it would be expedient to form a connection between it and the James river canal, either at Lynchburg, or some point west of Lynchburg, and that a very different plan of improvement would be advisable east and west of such point of connection. *East of it*, there would certainly be no occasion for anything more than a single track railroad, adapted to the transportation of passengers and light and valuable goods, and I have little doubt that, for a long time, it would be most expedient, in this portion of the railroad to make use of a plate rail superstructure, similar to that in the northern and southern line of railroad through Virginia. I would advise this course in the first instance, not only on account of the diminished first cost of the work on such a plan, but because, waiving this consideration, the excess in the annual expenses of the cheaper work, in this portion of the route, would not probably for many years equal the interest on the difference in cost, between a plate rail and edge rail superstructure. On the other hand, whenever it might be expedient to change the one for the other, no very material loss would be sustained, old railroad iron being always saleable for a large proportion of its original cost.

We may judge of the economy with which such a work would be constructed along any one of the ridges in Virginia, between tide-water and the mountains, (for in their topographical features they resemble each other closely,) by the cost of the Louisa railroad, which was constructed at a much earlier period than the present, for about \$8,000 per mile.

*West of the point* where the contemplated work would touch, or be connected with the canal, a very different plan would be advisable. As on the western portion of the railroad, a *heavy trade* as well as travel might be expected, it would be expedient to construct this part of the work as free as possible from objectionable grades and curves, and it would be advisable in the course of a few years, though I think not in the beginning, to lay down an edge, or heavy iron rail superstructure. There is nothing, however, in the topography of this portion of the route, which induces me to believe that a railroad between the point at which it would connect with the canal and the Ohio, would be peculiarly expensive.

A large portion of the road, in every trace which might be adopted, would be along the valleys or streams, and though these in mountainous districts present often points of a good deal of difficulty, yet there is always less difficulty in securing suitable grades in valleys, than there would be in crossing alternately *vallies and ridges*, involving as these do frequently deep cuttings and fillings in comparatively a champaign country. In even the most difficult passes on the western portion of the route, it would be no very serious matter to effect the graduation for a *single track* railroad, and, on the plan of improvement which I would recommend as most eligible for the work in question, it would, probably, rarely be necessary to grade for a double track on portions of the route presenting particular obstacles.

My idea is, gentlemen, that while the eastern portion of the route need be only a single track railroad, with turnouts at suitable distances, the western should be a double track road, for a sufficient portion of its length to prevent any risk of embarrassment in the movement of trains, for the largest amount of tonnage, which in view of the numerous works which will undoubtedly be executed between the east and west, can be reasonably anticipated in the contemplated improvement. Taking the most enlarged view of this matter, and executing enough of the work a double track, to answer any demands of trade and travel which the work may be expected to command, still a large portion of the western division of the work, or that beyond its point of connection with the canal, may be, without material disadvantage, a single track railroad. It will then be requisite only, so to adjust the plan of the improvement as to make those portions of the western division double track, where for long distances an increased breadth of roadway would be attended with no greatly enhanced expense; and to reverse the case where for a long distance, (as in the New River cliffs,) a single track would be comparatively a slight, and a double track a very serious matter, to have all or nearly all the advantages of a double track railroad, at a greatly diminished cost.

Executing the work on the plan which I have sketched above, I have no doubt that Virginia may have, between Richmond and the Ohio river, a work, *superior in value to any similar work now existing or in course of execution between the east and west*, for not exceeding in the first instance *eight millions of dollars*. And when the trade and travel shall have accumulated on such a work, to an extent sufficient to make it expedient to substitute the original superstructure by a heavy iron rail, the work itself will, at the same time, furnish abundantly the means of accomplishing the object.

Your second inquiry is, gentlemen, "How far would such a work be a profitable one to the stockholders?"

Of course any reply to this inquiry must be based on the presumption that the act of incorporation would be a liberal one. In this event, the results of the business of the

Baltimore and Ohio railroad company, for the past year, furnish us very certain data for answering your question.

It appears, from the last report of the president and directors, that the gross receipts of the company from its main stem, for the year ending the 30th of September, 1846, were \$895,315 22 and that its *net revenue*, "after deducting the expenses of working and keeping the road in repair, amounted to the sum of \$440,475 34,—being \$65,713 60 greater than the previous year, and more than 6 per cent. upon the capital of the company." These are the results of a work which when completed will have a plan and profile very inferior to what may be attained on the Virginia line of improvement which will terminate at a point on the Ohio less favorable for commanding the trade of the west, and which so far as completed, has cost more than seven and a half millions of dollars, or nearly as much as the whole line between Richmond and Guyandotte, I leave you, gentlemen, to deduce the result from these data, satisfied in my own mind that no work which can be projected in Virginia could be as profitable to the parties executing it, whether the State or individuals, as assuredly none could diffuse more widely extended benefits, both to the State and the Union, than the one to which your inquiries are directed.

Your third inquiry is, "Would it be practicable to raise the capital stock for such a work, under an act of incorporation which would exempt the stock and property of the company from taxation, until the dividends should exceed six per cent., and which would guarantee the company for the term of thirty years from the completion of the work, from the competition of a line of railroad connecting the Baltimore and Ohio railroad with the Ohio river below the town of Wheeling?"

If, in addition to the provisions suggested by you in an act of incorporation, the work as contemplated was made (on the plan of the English and some of the northern roads) the property of the stockholders, allowing them the right to regulate the tolls as they might deem fit, and the company were also allowed to commence the work as soon as a subscription should be made up sufficient to insure its *bona fide* prosecution, I cannot doubt that the stock requisite for its commencement would readily be taken, and I have as little doubt that the work once commenced, would rapidly progress to completion. I can see no objection to these provisions in comparison with the objects to be attained by them. The State may effectually guard against the line being *tied up* in an act of incorporation, by a provision, that whenever the work shall cease to progress at the rate of at least thirty or forty miles annually, the privileges of the company, *as regards the unfinished portion*, shall be forfeited. Supposing such a result, the legislature would have effected, by means of the act, a portion more or less, if not the whole, of the work in question, and it would be proportionally less difficult to secure the execution of the remainder of the line.

As regards an unrestricted charge, there can scarcely be a doubt that the interests of

the company will always dictate lower rates of charge, than any limits which might be given in a charter, *unless in the case of an inconvertible currency.* But every prudent capitalist will, in making large investments, look to such a contingency, and it is evident that an act of incorporation which leaves to a company the power to regulate its charges according to the medium in which they may be paid, will be more valuable for such a feature, and present more chances of the stock being taken up under it.

With an act of incorporation containing the above provisions, there would, in my opinion, be no occasion for the grant of the unusual privileges as regards the purchase of large bodies of land, manufacturing, etc., given in the act of incorporation of the Richmond and Ohio railroad last winter, while the feature of a charter suggested in this, and which would probably be deemed by the legislature much less (if at all) exceptionable, would certainly be much more efficient in commanding the requisite capital.

In your communication you add, "we should be pleased, in addition to your response to the foregoing interrogatories, to receive your views in relation to the practicability, utility, importance, and cost of constructing the proposed railroad from Richmond on the south of James river to the Ohio, and the probability of securing subscriptions to stock in the same, provided there be a reasonable charter."

All the reflection and examination which I have given to the subject have induced the impression, that the most eligible route for a railroad between Richmond and the Ohio, would be probably on the south side of James river, passing through the counties of Amelia and Nottoway, and thence, either by the valley of the Staunton river, or by Lynchburg and the valley of Virginia, to the New river, and afterwards along the valley of New river, either to the mouth of Kanawha, or diverging below Charleston to Guyandotte;—but it seems to me, as the interest of the company and the commonwealth would be identical to having the railroad made on that route which would combine the greatest advantages, there could be no objection to leaving to the former the widest scope in the location of its work; excluding it only from the immediate valley of James river below Lynchburg, as in the act of incorporation of the Richmond and Ohio railroad company of last winter. Its western terminus being on the Ohio river, at or below the mouth of the Great Kanawha, whether its eastern was at Richmond, at Gordonsville, or at some point on the Richmond and Petersburg, or the Clover Hill railroad, might, it appears to me, be safely left to the stockholders to decide; and it would I have no doubt, aid materially the accomplishment of the object in view to do so, because the charter of the company would thus be presented in the most attractive form to capitalists.

I have thus given you, gentlemen, frankly my reply to the queries proposed by you. It is in the power of Virginia, possessing as she does the most advantageous route for a

railroad between the east and the west, to have, if she wills it, such an improvement. But there are two modes only of effecting the work. It must be either executed by the State herself, with her own means, or if she wishes it effected by private capital, she must give such an act of incorporation as will satisfy capitalists of the probable productiveness and security of an investment in it.

I am, gentlemen, with great respect, your obedient servant, MONCURE ROBINSON.

#### Baltimore and Ohio Railroad.

Continued from page 502.

#### Statement of B. H. Latrobe, Esq., to the President of the Baltimore and Ohio Railroad Company.

The three routes, nos. 1, 2 and 3, being brought into the comparison together, present the following relations to each other, as regards length and cost:

Description of route.	Actual dist. in miles.	Estimated cost of construction.	Estimated cost of working.	Total estd. cost of construction and working.	Diffs. of cost compared with No. 1.
		Dolls.	Dolls.	Dolls.	Dolls.
Wh. ck.	61 1/4	2,753,707	2,708,398	5,462,105	
Gra. ck.	62	2,567,322	2,656,801	5,224,123	237,982
Fish ck.	66 1/2	2,423,018	2,524,892	4,947,910	514,195

So that the Grave creek route (No. 2) is cheaper to "construct, maintain and work," than the Wheeling route (of 1844) by \$227,982.

And the Fish creek route (No. 3) is cheaper to "construct, maintain and work," than the Wheeling creek route (of 1844) by \$514,195.

While, as stated in the report, the Fish creek route (No. 3) is cheaper to "construct, maintain and work," than the Grave creek route (No. 2) by \$276,213.

#### Letter and statement of Jonathan Knight, Esq., to the President of the Baltimore and Ohio Railroad Company.

Estimated length of road, and estimated cost of construction, with one track.

143 1/2 miles from Cumberland to mouth of Piles' fork, estimated by B. H. Latrobe, in the year 1843.....	\$4,150,125
61 1/4 miles from mouth of Piles' fork to Wheeling, by J. Knight's route of 1844, as estimated by B. H. Latrobe.....	9,138,707
205 miles from Cumberland to Wheeling.....	6,268,832
143 1/2 miles from Cumberland to Piles' fork, as above.....	4,160,125
62 miles from mouth of Piles' fork to Wheeling, by the combination route, partly by the route of 1844, and thence by Grave creek, 1847.....	1,947,322
205 1/2 miles from Cumberland to Wheeling.....	6,097,447
143 1/2 miles from Cumberland to mouth of Piles' fork, as above.....	4,150,125
65 1/2 miles from mouth of Piles' fork to Wheeling, by way of route of 1847, that is, by forks of Fish creek, Bigrun, and Grave creek.....	1,869,509
209 1/2 miles from Cumberland to Wheeling.....	6,009,634
143 1/2 miles from Cumberland to mouth of Piles' fork, as above.....	4,150,125
73 1/2 miles from mouth of Piles' fork to Wheeling, by way of the mouth of Fish creek, as estimated in 1847, by J. Knight.....	1,721,534
217 miles from Cumberland to Wheeling.....	5,871,659
143 1/2 miles from Cumberland to mouth of Piles' fork, as above.....	4,150,125
66 1/2 miles from mouth of Piles' fork to	

Wheeling, by way of the mouth of Fish creek, as estimated by B. H. Latrobe, in 1847..... 1,756,018  
210 miles from Cumberland to Wheeling..... 5,908,143

Very respectfully,  
Hon. Lewis McLane,  
President Baltimore and Ohio Railroad Company.  
Baltimore, July 6th, 1847.

Columbus, June 26, 1847.

ALFRED KELLY, Esq.

Sir,—The City Council have this day appointed you a delegate to represent this city at a meeting of the Baltimore and Ohio railroad company, to be held at the city of Baltimore. The City Council authorized me to request you to accept the appointment.

I am, sir, very respectfully yours,  
R. W. McCoy, Pres't City Council.

Baltimore, July 2, 1847.

TO THE HON. LOUIS McLANE,

Pres't Balt. and Ohio Railroad Co.

Sir,—At your suggestion I promised to commit to writing the substance of the information and views which I as a delegate of the City council of Columbus, had the honor to communicate verbally to yourself and committee on yesterday. For the sake of perspicuity, and, as far as practicable, avoid repetition, I shall consider the subjects under different heads.

*The object to be attained by adopting a proper terminus on the Ohio river for the Baltimore and Ohio railroad.*

This object unquestionably is to secure the greatest amount of travel and profitable transportation to the road. It will, as it seems to me, be best attained by carefully considering and correctly determining what portion of the travel and trade of the great west can be attracted to and secured upon the road. It is vain to contend for that which nature has placed beyond our reach, and useless, or nearly so, to grasp that which we cannot hold. No one railroad, or other channel of trade or travel can ever become the sole line of communication between the great basin of the Mississippi and the Atlantic seaboard. No one channel, formed by the hand of man, can be of sufficient capacity for the mighty mass which must soon flow in this direction. A portion, I may even say, a comparatively small portion is all that any one railroad can accommodate—it is all that even the most aspiring need ask.

Both the trade and travel of the country in the vicinity of the great lakes, will most naturally, and, as I believe, ever seek connexion with the more northern cities of the Atlantic seaboard and with Canada, through the lakes—the St. Lawrence—the New York canals, and the railroads which are or will be constructed, for the conveyance of passengers and more or less freight at all seasons of the year—and to answer as lines of transportation when the navigation is closed. Canada frequently affords the best market for the surplus breadstuffs and provisions of this region—and when this is not the case, the higher price which these articles almost always command in New York and Boston, than in the more southern cities, operates as a controlling inducement for the holders of these arti-



cles to send them to market in this direction. The fact that most articles of domestic manufacture and nearly all of foreign growth and manufacture, can be purchased somewhat cheaper in Boston and New York than in the more southern cities, also attracts to them the trade of that portion of the west which can reach them without a great increase of distance and expense of transportation beyond that attending transportation to and from Philadelphia and Baltimore. Tobacco, and, perhaps, some other agricultural productions, form exceptions to this rule. But this is an article which is not cultivated for foreign markets in the country adjacent to the great lakes.

A considerable portion of the travel between this region and the Atlantic cities, particularly in the winter season, takes a route as far south as the National, or Cumberland road. I apprehend this will continue to be the case so long as equal facilities are offered by railroads, or other modes of conveyance on this route. Washington, to say nothing of Baltimore and other places, is a great point of attraction to those who travel for pleasure, and even for those whose principal object is commercial business. And this attraction exercises an annually increasing influence. This portion of the travel between the country adjacent to the great lakes and the Atlantic cities, the Baltimore and Ohio railroad may reasonably expect to grasp and hold by a judicious selection of the route and western terminus.

The surplus productions of that portion of Ohio, Indiana, and Illinois, which is adjacent to the Ohio river, naturally seek a market in New Orleans and the states situated on the Lower Mississippi and the gulf, except at times when the price of these productions is greatly depressed as compared with the prices in the great commercial cities on the Atlantic. When this is the case, these productions are sent to market either by means of canal and lake navigation to New York and Canada, or by the Ohio railroads and canals to Philadelphia or Baltimore. Much the larger portion of these products, except from the country in the vicinity of the canals of Ohio, floats down the Ohio and the Mississippi. Such, I apprehend, will continue to be the case for many years to come, and, perhaps, for ever. To these remarks there are, however, some exceptions. Much of the surplus produce of the eastern counties of Ohio, which are bounded on the Ohio river, is now sent to Baltimore by way of the Cumberland road and Baltimore and Ohio railroad, or to Philadelphia through the canals and railroads of Pennsylvania. Tobacco and live hogs pursue one or other of these routes, mostly the former, even from the central portion of Ohio. The completion of the Baltimore and Ohio railroad to a proper point on the Ohio—especially if connected with a railroad penetrating the interior of Ohio would greatly increase this trade.

The travel to and from the southern portions of these great states would be much more readily, and in much greater proportion, attracted to a railroad in this direction

than its export trade; as would also the transportation of goods from the Atlantic cities, to this region. All articles of merchandise, of great value as compared with their bulk and weight—such as dry goods, are now, almost all, brought to this section of the western country directly from the eastern cities by canals, railroads, or wagons. A continuous line of railroads from Baltimore to Cincinnati, and through the central regions of Ohio, Indiana and Illinois, would engross a very large portion of this transportation.

*The country whose trade may be successfully contended for by the Baltimore and Ohio railroad is, however, principally comprehended by the eastern and central sections of Ohio, and the central sections of the great States lying west of Ohio. I here use the word central in contradistinction from the northern and southern sections of these states. No other line of transportation from the Atlantic seaboard, except one from Philadelphia via Pittsburg, will be likely to compete with it, with any reasonable prospect of success, so far as the importation of merchandise, particularly the lighter classes of goods, is concerned. And even the southern portions of these states will be supplied with this kind of goods principally through this channel, as I have already suggested is now the case.*

In regard to travel between the east and the west, the road may justly lay claim to even a larger share. Two great streams of travel—one coming from the west, the other from the southwest, will meet in Ohio in their progress towards the northeastern and eastern cities of the Union. A large portion of this travel, whether induced by pleasure, the pursuit of health or business, will take a route by way of the great lakes, Niagara Falls, and western New York, to Boston, and, having passed from thence through New York, Philadelphia, Baltimore, and, perhaps, to Washington, will return by way of the Baltimore and Ohio railroad. An equally large portion will reverse this order of proceeding, passing over the same ground, but in the contrary direction. Another portion will proceed to some one or more of these Atlantic cities, and return by the same route—the variations depending on the season of the year, the business, or the inclination of the traveller.

Whether this travel will pass along the Baltimore and Ohio railroad or through Pittsburg to Philadelphia, will in a great degree depend on the facilities offered by each for easy, safe, cheap, and expeditious travelling. The length or shortness of the line, other things being equal, will of course form an important item in the decision of this question. To those who wish to visit all the cities which I have named, it will be a matter of some consequence to take them in course by beginning at one end of the row and ending at the other. Thus, if a traveller commences at Boston and visits these cities in his course, he will naturally feel disposed to commence his journey west from Baltimore, rather than take his back track to Philadelphia, and vice versa, unless business

or a decidedly better route should induce a different decision.

*Where is the best point for terminating the Baltimore and Ohio railroad on the Ohio, with reference to securing the great objects to which I have adverted? The answer is:*

That point which can be reached by a railroad from the centre of Ohio by the shortest distance—passing over the most suitable ground for that purpose—when a railroad will be most certain to be soon made, and which, from its location, will attract the greatest amount of business, and be most certain to secure it to the Baltimore and Ohio railroad.

What point on the Ohio river, which is accessible by the Baltimore and Ohio railroad, unites in the greatest degree these advantages?

Several points below Wheeling—Wheeling and Pittsburg have been named. I propose to submit a few remarks as to each of these—premising that as my knowledge of the localities east of the Ohio river are very limited, so far at least as they present facilities or obstructions to the making of a railroad, I leave this division of the question out of view.

In regard to the several points proposed for the western terminus of the Baltimore and Ohio railroad, below Wheeling, it should be observed that all these points are opposite to a comparatively poor and thinly peopled part of the State of Ohio—as will be seen by reference to the official tabular statement of the valuation of the real property of the several counties of the State of Ohio. A portion of the state which is able to contribute little to the cost of constructing a railroad, or towards the travel and business by which it is to be sustained when made. All this section is exceedingly rough, presenting great obstructions to the conducting of a railroad through it, unless a route is selected which lies along the valleys of the streams. So evident is this, and so fully is the fact conceded by the citizens of this region, that the representatives in the Ohio Legislature from some of these counties three years ago introduced a bill for constructing a railroad from Washington county to Columbus by way of the valley of the Muskingum or Hockhocking, supposing that the Baltimore and Ohio railroad would terminate on the Ohio opposite some part of Washington county, and this was designed to connect the Baltimore and Ohio railroad with the western and central parts of Ohio, and even with Cincinnati. This charter was so amended during its progress through the Legislature, as to give the company the right of making the road from Franklin county to any point on the Ohio where the Baltimore and Ohio railroad might terminate. Were this termination opposite the mouth of the Muskingum or the Hockhocking, or any point between the mouths of those rivers, it would then, as I believe, be found the best route even to Cincinnati, to follow the valley of one or other of those rivers to the margin of the level country—cross the Scioto, as high up at least as Pickaway county, and proceed thence to Cincinnati.

It is possible that a practicable route from the Ohio to the margin of the level country at Newark may be found by the valleys or rather ravines of Sunfish—the Seneca and Buffalo branches of Wills creek, the east branch of Salt creek, and thence by the valleys of the Muskingum and Licking rivers to Newark. This route between the Muskingum river and the mouth of Sunfish, lies through a rough and comparatively poor and thinly settled part of the state. It is also presumed that numerous short curves, wash banks and crossing of the streams must be encountered in passing along the ravines of these streams.

It is known that a good route for a railroad from Wheeling to Columbus is presented by the valleys of Indian Wheeling—Still Water, the Tuscarawas, Muskingum, Tomaka, and Licking, to Newark, and thence across the open country to Columbus. The feasibility of this line is demonstrated by the actual construction of the Ohio canal from a point opposite the mouth of Still Water to Newark, by actual surveys, for a canal or slack water navigation, along the valley of Still Water; and a survey thence to the mouth of Wheeling creek, made some years ago with a view to the construction of a railroad.

That part of this route which extends from Newark to Columbus, is through a plain or open country, which it is known presents no obstacles worthy of note.

The distance by this route, from Wheeling to Columbus, I estimate at one hundred and fifty-two miles, viz:

From Wheeling to mouth of Still Water, 50 miles.	
Mouth of Still Water to Newark.....	69 "
Newark to Columbus.....	33 "
Total distance.....	152 "

The only portion of this route in regard to the length, of which there is any material uncertainty, is between Wheeling and the mouth of Still Water. And to the length of this portion, ascertained by dividers set to five miles, and stepped on the most accurate map along the route, I have added eight miles; which is, as I believe, more than sufficient to cover the additional length caused by short curves, or departures from the general course. The railroad distance from Columbus to Cincinnati, either by way of Xenia or Springfield and the Little Miami railroad, or by way of Springfield, Dayton, and the valley of the Great Miami, is about 120 miles, making the total distance from Wheeling to Cincinnati 272 miles.

It is possible, perhaps probable, that shorter, and, on the whole, better routes may be found between Wheeling and Newark, than that above designated. But to point out one known to be feasible and reasonably direct, is sufficient for my present purpose.

A favorable line for a railroad from Columbus to Pittsburg is also presented by the valleys of Licking—Tomaka—Tuscarawas—the Sandy—Little Beaver or Yellow creek—and the Ohio river from the mouth of one or the other of these latter streams to Pittsburg.

This route is identical with that above indicated from Columbus to the mouth of Still

Water. The distance from this point to Pittsburg, by the valleys of the Tuscarawas, Sandy, Little Beaver, and the Ohio railroad, I estimate at 116 miles. From the mouth of Still Water to Pittsburg, this line, however, presents more difficulties than that portion of it which extends from the mouth of Still Water to Columbus. The valleys are more crooked, more contracted, and in other respects less favorable in their character. Still, no serious difficulties are interposed.

*To which of the points proposed as a western terminus of the Baltimore and Ohio railroad, will a railroad connection from Cincinnati and the western and central portions of Ohio most certainly and soonest be made?*

I believe, to Wheeling. A railroad is already finished and in successful operation from Cincinnati to Springfield, via Xenia. A company is formed, and the requisite amount of stock taken to construct a road from Xenia, or Springfield, as the company may elect, to Columbus. Surveys are now being made, preparatory to putting a large portion of this road under contract. It will probably be finished in two years or less. There is thus left of railroad to be provided for, in order to reach Wheeling, but 152 miles. Books will soon be opened for the subscription of stock to a company incorporated to make this road, and if it be known that the Baltimore and Ohio railroad will soon be made to that point, it will operate as a powerful stimulant to the enterprise.

The means cannot, as I apprehend, be as soon procured for making a railroad from Columbus to Pittsburg, for the obvious reason that the distance is some 66 to 70 miles greater, and the sum required to construct the road, in that proportion, at least, greater. Besides, I think it presents the people of central Ohio a longer and somewhat less desirable route for reaching the Atlantic cities.

*Which of the proposed connexions will attract the greatest amount of western trade and travel?*

In reference to this question, Wheeling and Pittsburg may be supposed by many to occupy nearly the same position. It, however, appears to me, after a careful consideration of all the attendant circumstances, it will be found that the Wheeling route has the decided advantage. A route from Wheeling west, passes more centrally through the great States of Ohio, Indiana, Illinois, and Missouri. It approaches nearer the great and growing city of Cincinnati, and the northerly bend of the Ohio, the point where a large portion of the passengers who come up the Mississippi and Ohio in steamboats, even now, leave the river, and proceed by land to the eastern cities. It passes at a greater distance from the lake, and is therefore less likely to lose its business by the attractions of that route.

If to attain the same ground, a route from Pittsburg west incline so far to the south as to pass through the centre of Ohio, and thence onward in the direction of St. Louis, the length of the route is considerably increased, and, as a consequence, rendered more expensive and less desirable as a route for travel or trade.

A route either from Cincinnati or Columbus to any point on the Ohio below Wheeling, would attract to the Baltimore and Ohio railroad less business than either that to Wheeling or that to Pittsburg, for reasons previously hinted at. It must pass through a far less populous, less productive, and poorer country, and one ever likely to remain so, while one more populous, wealthy and productive, lying further north, will not be accommodated by it, and will therefore seek another route, construct a rival road, and form other connections. It is true, that at certain seasons passengers and freight coming up the Ohio, may with more convenience reach a terminus lower down the river.—These periods, however, are of short duration, for generally when a steamboat can reach Parkersburg, it can pass on to Wheeling, and at all such times it makes little difference to a passenger whether he travels by water a few miles further, or by land a few miles less, or the reverse. But I apprehend the principal business of the Baltimore and Ohio railroad is not to be derived from the river, but from the land; that is, it will be approached to a far greater extent by means of roads than by means of river navigation.

One question only remains to be considered, viz:

*Which of the proposed termini will most effectually secure to the Baltimore and Ohio railroad that business to which, as I have endeavored to show, it has a fair claim?*

I answer, that terminus which is situated nearest in a direct line between the points which are proposed to be connected—provided it be upon as favorable a route for the construction of a road or system of roads—and pass through a country as fertile, populous and wealthy, as its rival routes.

In my view, Wheeling, or some point near it, occupies this position. This consideration induced the making of the National road through this point. I have before shown that at least one favorable and pretty direct route, leading west from this point is presented, and that a system of railroads from Cincinnati, through the central region of Ohio, is either made or provided for, as far as Columbus, pointing towards Wheeling. It is true that by continuing on some 66 or 70 miles further, and sweeping round further to the north, a terminus at Pittsburg could be reached; and should the Baltimore and Ohio railroad company make this their western terminus, such a connection would, at no very distant day, undoubtedly be formed. But what would be its effect on the business of the Baltimore and Ohio railroad, and on Baltimore itself? It would undoubtedly be to attract western and southwestern trade and travel to Pittsburg to be forwarded on in far greater proportions to Philadelphia, and not to Baltimore. Baltimore would no longer enjoy its present enviable position on the great thoroughfare of eastern and western travel and trade, nor would its proud work any longer serve as its favorite channel.

Were it conceded that no railroad connection between Pittsburg and Philadelphia could ever be formed, and were the Baltimore and



Ohio railroad company debarred, by any insuperable obstacle, from the selection of a more advantageous terminus for their great work, then, indeed, might it be expedient to form a connection with Pittsburg. But as the construction of a railroad from Pittsburg to Philadelphia may be considered certain, and that too at no distant day, especially if the trade and travel of the west be invited to the former city by making it the western terminus of the Baltimore and Ohio railroad, and, as another more eligible point for that terminus is accessible, as well from the west as from the east, it seems to me that no stockholder, I may say no Baltimorean, who will make himself acquainted with the subject, can for a moment hesitate in rejecting Pittsburg and selecting Wheeling as the western terminus of the Baltimore and Ohio railroad.

I am, sir, with great respect, your humble servant,  
ALFRED KELLEY.

Baltimore, July 5th, 1847.

HON. LOUIS McLANE:

Sir: I accidentally omitted, in my communication to you of the 2d inst., to remark upon the route of a railroad from Pittsburg west, through the counties of Columbiana, Stark and Wayne, etc., in Ohio. Such a route, in anything like a direct course, I consider impracticable. After leaving the northerly bend of the Ohio, say at or near the mouth of Little Beaver, it must pass through a country much broken by hills and valleys whose general direction, with few exceptions, crosses the track of a road running in an east and west direction. To obtain anything like a good line in this direction, it would be necessary to follow the valley of one of the forks of Little Beaver and of Sandy creek, to the Tuscarawas, in the westerly part of Stark county, or to swing round to the northern verge of this hilly country, near the south line of the Western Reserve, after leaving the valley of the Main or Northwestern Branch of Little Beaver. After reaching the Tuscarawas, it would also be found necessary to adopt a very crooked line, governed by the valleys of the streams, in order to reach Wooster in Wayne county. Between Wooster and Mansfield the country is also hilly—the hills extending generally in a direction from west of north to east of south, and, therefore, across the line of a road pursuing an easterly and westerly direction.

I feel confident that no favorable route for a railroad from Pittsburg to the central part of Ohio and Cincinnati can be found in this direction which will not be longer than the one suggested in my former communication, via the valleys of the Sandy Tuscarawas, thence along the valleys of the Toniaka and Leeking, or the Walkandy and Owl creek, to Mr. Vernon, thence southwest to Columbus. With all this region of country I am pretty well acquainted, having formerly explored it in reference to canal routes—and latterly lines have been run through the western portion of it with a view to discover the best railroad route from Cleveland to Columbus, the minutes of which I have seen and examined. I am, sir, very respectfully, your humble servant,  
ALFRED KELLEY.

Names of Engines.	Number.	Weight of each engine in tons and decimals.	Commencement of service.	No. of miles run by each engine from April 1, 1846, to April 1, 1847.	Total number of miles run by each engine from commencement of service to April 1, 1847.	Cost of repairs to each engine, from April 1, 1846, to April 1, 1847.	Total cost of repairs to each engine from commencement of service, to April 1, 1847.	Condition of engines.	Remarks.
Pennsylvania..	113-08	May 6, 1837	16,137	104,868	\$1,400 17	\$6,804 59	In shop undergoing repairs.		Sold to the State of Georgia.
Georgia.....	211-59	Dec. 27, " "	15,537	136,734	599 54	7,306 39	In shop in good order.		" "
Florida.....	411-50	Jan. 12, 1838	152,054	188,923	1,112 69	5,937 21	In shop in good order.		" "
Alabama.....	511-33	Feb. 2, " "	25,646	92,028	638 28	5,576 63	In shop for repairs.		" "
Louisiana.....	614-40	May 29, " "	10,557	118,399	546 24	5,461 34	On road in good order.		" "
Tennessee.....	712-90	Nov. 6, " "	9,209	83,550	303 76	5,545 01	In shop for repairs.		" "
Wm. Deering..	812-96	Dec. 24, " "	18,536	96,888	713 45	4,845 21	On road in good order.		" "
Virginia.....	912-90	Dec. 24, " "	16,119	106,962	724 30	5,603 93	" "		" "
Mississippi....	1012-90	Mar. 24, 1839	20,063	37,522	1,005 69	7,246 37	" "		" "
Kentucky.....	1112-35	Dec. 14, " "	12,349	56,387	1,067 82	3,075 93	In shop for repairs.		" "
Wm. Cumming..	1212-35	Dec. 23, " "	17,183	36,918	342 56	1,060 70	On road in good order.		" "
James Canale..	1311-08	Jan. 3, 1845	14,936	52,654	604 83	811 69	In house in complete order.		" "
Cherokee.....	1415-60	Apr. 28, " "	14,936	52,654	535 97	603 23	On road in complete order.		" "
South Carolina	1515-68	Nov. 1, " "	10,786	18,343	1,074 57	1,127 12	In shop		" "
North Carolina	1615-70	Nov. 4, " "	40,276	53,956	1,231 01	1,599 11	On road		" "
Eagle.....	1713-14	Dec. 5, " "	1,752	9,238	432 42	432 42	On road		" "
Chickasha.....	1818-60	Aug. 1, 1846	9,329	5,529	215 67	215 67	On road in complete order.		" "
Ochecoega.....	1915-60	Oct. 28, " "	4,678	4,678	135 07	135 07	" "		" "
Maryland.....	2015-70	Jan. 3, 1847	768	768	200 69	200 69	" "		" "
Dart.....	2118-60	Feb. 16, " "	585	585	" "	" "	" "		" "
Swallow.....	2218-60	Feb. 24, " "	" "	" "	" "	" "	" "		" "
Fairy.....	2318-60	Mar. 16, " "	" "	" "	" "	" "	" "		" "
Pleayune.....	2418-60	" "	" "	" "	" "	" "	" "		" "
			358,954	1,505,565	\$13,821 03	\$71,591 42	In shop not put together.		Purchased for the Memphis Branch railroad.

**NOTICE TO CONTRACTORS.—ANDROS, COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Railroad Office, in Lewiston, until the 17th of August next, inclusive, for the Grading and Masonry of the 2d Division of this Road, extending from Green to Belgrade, near Snow's Pond, about 20 miles.

Profiles will be ready for examination on and after the 10th of August, and all necessary information will be given, either at this office, or upon application to the resident engineers on the line of the road. Satisfactory bonds with sureties shall be given by the bidders, if required.

On the 16th of August, the Engineer will be prepared to accompany Contractors over the line of the road, commencing at the eastern end of the Division in Belgrade.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.  
Railroad Office, Lewiston,  
July 13, 1847.

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windorer, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron* only. Address  
SAM'L KIMBER & CO.,  
Willow Street Wharf,

We published, in No 30—July 24th—of the Journal, the Annual Report of this company, but omitted one of the most important and useful tables—that showing the number, condition and cost of repairs of, and miles run by, the Locomotive Engines belonging to the company. We now supply this omission.

GEORGIA RAILROAD AND BANKING COMPANY.

List of Locomotives in 1847.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advancements on consignments to their address.

July 31—3m

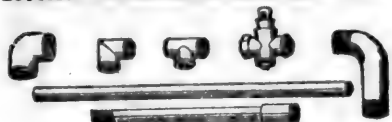
ROBERT GRACIE.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to  $\frac{1}{2}$  in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse 8. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

281f

**SPRING STEEL FOR LOCOMOTIVES,**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

**A. & G. KALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons  $2\frac{1}{2}$  x  $\frac{1}{2}$  inch Flat Punched Rails, 20 ft. long. 25 "  $2\frac{1}{2}$  x  $\frac{1}{2}$  " " Flange Iron Rails. 75 " 1 x  $\frac{1}{2}$  " " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

111

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

26tf

**PATENT RAILROAD, SHIP AND BOAT**

Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v191y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Kenseleer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hineckly & Drury, Boston, will be promptly executed.

FRENCH & BAIRD.  
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Meritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

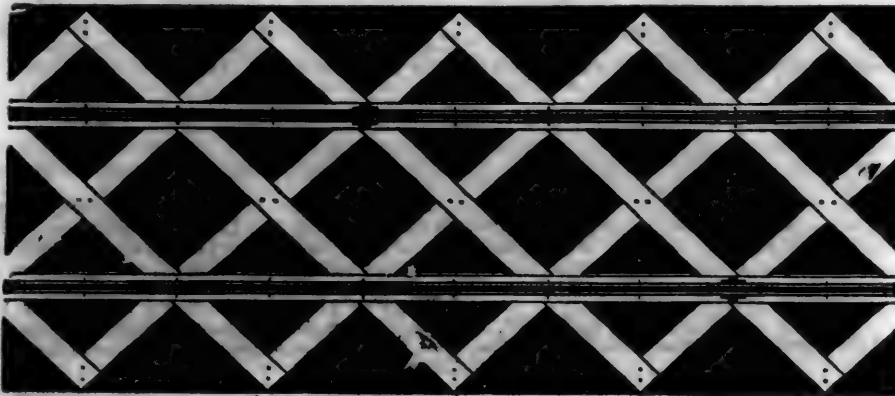


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,324 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 331f

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Dec. 25, 1y\* Pres't. Mt. Savage Iron Works, Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Road Depots, etc.

West Troy, May 13, 1847.

ANDREW MENEELY.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
12cf Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 321y

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope. INCH.	Weight per fathom. LBS. OZ.	Circumference of rope. INCH.	Weight per fathom. LBS. OZ.		Weight per fathom. LBS.	Diameter of iron. INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3¼	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2¼	4 3	6	8 8		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24*

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**THE SUBSCRIBERS, AGENTS FOR** the sale of

Codorus,  
Glendon,  
Spring Mill and  
Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

**DAVIS, BROOKS & CO.,**

Jan. 2. [11c] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] **WILLIAM ROE, Sup't of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] **T. L. SMITH,**

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] **JOHN LEACH,**

Jamaica November 12, 1845.

1y19 Sup't Motive Power

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for

some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

**G. A. NICOLLS,**  
ja45 Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**

ja45 N. E. cor. 15th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10c

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 8 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 40c



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

**TO LOCOMOTIVE AND MARINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS**, War-house S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**PATENT INDESTRUCTIBLE WATER**

**Pipes.** The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 284f

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.** On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7.11 1-4 a.m., and 2 1-2, 4 1-3, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON**, Agent.





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/2 o'clock a.m.	12 1/4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/2 o'clock a.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

25th Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7 1/2 and

Cumeroiland at 8 o'clock, passing Ellicott's Mills,

Frederick, Harpers Ferry, Martinsburgh and Han-

cock, connecting daily each way with—the Wash-

ington Trains at the Relay House seven miles

from Baltimore, with the Winchester Trains at

Harpers Ferry—with the various railroad and

steamboat lines between Baltimore and Philadelphia

and with the lines of Post Coaches between Cum-

berland and Wheeling and the fine Steamboats on

the Monongahela Slack Water between Browns-

ville and Pittsburgh. Time of arrival at both Cum-

berland and Baltimore 5 1/2 P. M. Fare between

those points \$7, and 4 cents per mile for less distan-

ces. Fare through to Wheeling \$11 and time about

36 hours, to Pittsburgh \$10, and time about 32 hours.

Through tickets from Philadelphia to Wheeling

\$13, to Pittsburgh \$12. Extra train daily except

Sundays from Baltimore to Frederick at 4 P. M.,

and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at

night from Baltimore and at 6 A. M. and 5 1/2 P. M.

from Washington, connecting daily with the lines

North, South and West, at Baltimore, Washington

and the Relay house. Fare \$1 60 through between

Baltimore and Washington, in either direction, 4

cents per mile for intermediate distances. 133y1

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.

Arrives at.....9 a.m. and 6 1/2 p.m.

Leaves York at.....5 a.m. and 3 p.m.

Arrives at.....12 1/2 p.m. and 8 p.m.

Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m.

Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50

" " Wrightsville.....2 00

" " Columbia.....2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND**

**HARRISBURG.**

Through tickets to Pittsburg via stage to Har-

risburg.....\$9

Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg.. 3

In connection with the afternoon train at 3 1/2 o'clock,

a horse car is run to Green Spring and Owing's

Mill, arriving at the Mills at.....5 1/2 p.m.

Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

31 1/2 Ticket Office, 63 North st.

**L EXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lex-

ington daily, at 8 o'clock a.m. and 2 p.m. Dis-

tance, 28 miles. Fare \$1-25.

On Sunday but one train; 5 o'clock a.m. from

Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to

15th March) is 6 o'clock a.m. from Lexington, and

ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WEST-**

**ERN RAILROADS, Ga.—These Roads with the**

Western and Atlantic Railroad

of the State of Georgia, form a

continuous line from Savannah to Oothcaloga, Ga.,

of 371 miles, viz:

Savannah to Macon—Central Railroad.....190

Macon to Atlanta—Macon and Western.....101

Atlanta to Oothcaloga—Western and Atlantic.. 80

Goods will be carried from Savannah to Atlanta

and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope,

Butter, Cheese, Tobacco,

Leather, Hides, Cotton

Yarns, Copper, Tin, Bar &

Sheet Iron, Hollow Ware &

Castings.....\$0 59

Flour, Rice, Bacon in Casks

or boxes, Pork, Beef, Fish,

Lard, Tallow, Beeswax, Mill

Gearing, Pig Iron and Grind

Stones.....0 50

On Measurement Goods—Boxes

of Hats, Bonnets and Fur-

niture, per cubic foot.....0 20

Boxes and Bales of Dry Goods,

Saddlery, Glass, Paints,

Drugs and Confectionary,

per cubic foot.....0 20 pr. 100lbs. 35

Crockery, per cubic foot.....0 15 " " 35

Molasses and Oil, per hhd.,

(smallercasks in proportion). 9 00

Ploughs, (large,) Cultivators,

Corn Shellers, and Straw

Cutters, each.....1 25

Ploughs, (small,) and Wheel-

barrows.....0 80

Salt, per Liverpool Sack.....0 70

Passage—Savannah to Atlanta, \$10; Children,

under 12 years of age, half price,

Savannah to Macon, \$7.

Goods consigned to the subscriber will be for-

warded free of Commissions.

Freight may be paid at Savannah, Atlanta

or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVAN-**

**NAH TO MACON. Distance 190 miles.**

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally.... 50 cts. per hundred.

On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses

and oil).....\$1 50 per barrel.

On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor,

not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlan-

tic Railroads—and by stage lines and steamers con-

nects with the Montgomery and West Point, and

the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily.....\$26 50

Fare through from Charleston to Huntsville,

Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to re-

ceive merchandize consigned to their order, and to

forward the same to any point on their road; and to

the different stations on the Georgia and Western

and Atlantic railroad; and to Montgomery, Ala., by

the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

25

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects

daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly

line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tuscumbia, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga

for Chattanooga, Jasper, Murfreesborough, Knox-

ville and Nashville, Tennessee.

This is the most expeditious route from the east to

any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAIL-**

road line—direct. Via Newark, New Bruns-

wick, Princeton, Trenton,

and Bristol. (Through in

six hours.) Leaving New York daily from the foot

of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4 1/2 " p.m.

The lines proceed direct to Bristol without change

of cars, and thence by the new steamer, "John Ste-

vens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars..... 3 00

Passengers will procure their Tickets at the office

foot of Liberty st., where a commodious steamboat

will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each

passenger in this line, and passengers are expressly

prohibited from taking anything as baggage but

their wearing apparel, which will be at the risk of

the owner.

Philadelphia Baggage-crates are conveyed from

city to city, without being opened by the way. Each

train is provided with a car, in which are apart-

ments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the

foot of Walnut st. at 9 a.m. and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily,

except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sun-

days only at 10 p.m.—being a continuation of the

line from New York. 25d

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50 and	\$3 00
" " Reading, 58		3 25 and	1 90
" " Pottsville, 34		1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. Stf

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Stf Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA.—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—33 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shoes, Spades, Scythes, Smiths' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs...	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton. F. C. ARMS,

Supt. of Transportation.

Augusta, Ga., July 15, 1847. 44\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between	and Decatur and intermediate points.	and Knoxville & intermediate points.	and Chattanooga.
Between Macon	0 22½	1 54	1 05
and Decatur and intermediate points.	0 22½	1 54	1 10
and Knoxville & intermediate points.	0 24	1 70	1 15
and Chattanooga.	0 24	1 70	1 20
Between Augusta	0 24	1 70	1 20
and Decatur and intermediate points.	0 24	1 70	1 20
and Knoxville & intermediate points.	0 24	1 70	1 20
and Chattanooga.	0 24	1 70	1 20
Between Charleston or Savannah	0 32	2 20	1 40
and Decatur and intermediate points.	0 32	2 20	1 40
and Knoxville & intermediate points.	0 32	2 20	1 40
and Chattanooga.	0 32	2 20	1 40

Between	and Decatur and intermediate points.	and Knoxville & intermediate points.	and Chattanooga.
Between Macon	0 22½	1 54	1 05
and Decatur and intermediate points.	0 22½	1 54	1 10
and Knoxville & intermediate points.	0 24	1 70	1 15
and Chattanooga.	0 24	1 70	1 20
Between Augusta	0 24	1 70	1 20
and Decatur and intermediate points.	0 24	1 70	1 20
and Knoxville & intermediate points.	0 24	1 70	1 20
and Chattanooga.	0 24	1 70	1 20
Between Charleston or Savannah	0 32	2 20	1 40
and Decatur and intermediate points.	0 32	2 20	1 40
and Knoxville & intermediate points.	0 32	2 20	1 40
and Chattanooga.	0 32	2 20	1 40

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

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J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

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MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

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One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 34.]

SATURDAY, AUGUST 21, 1847.

[WHOLE No. 583, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, August 21, 1847.

### The Great Erie Railroad.

"This great work, we rejoice to hear, is progressing very rapidly. There are some 3000 men engaged on it, and it will probably be completed in the autumn of 1848. This road will open to settlement one of the finest portions of the State. Delaware county is full of rich valleys, and pierced with fine streams of water in every direction. The butter made in that county already rivals that of Orange county, and in ten years Delaware will be what Orange county is now—one of the most productive counties in the State.

"The 'mountain sides' of Delaware, are well adapted to grazing; and from that county we shall in a few years get most of our fine cattle for the New York market. When the road is finished, *Deltas* will be within ten hours' ride of New York; and we prophesy that provisions in New York will be more abundant and cheap in 1858 than they are now."

The editor of the *Times and Gazette* may well say that the butter made in Delaware county already rivals that of Orange—as it is well-known that "Orange county butter" is made in *nearly every county in the State!* even St. Lawrence sends more "Orange county butter" to market than old Orange herself—the *farms* being made by sample—and correspond to a T. The editor is also right in his estimate as to the abundance and price of provisions, as far as he goes; but he does not go far enough—the price of provisions will be materially reduced in

the New York market, for the reason that there will be *ten acres* within supplying distance of the city, where there is now *one*, and the population will not be doubled in ten years.

It will be a common thing to eat *butter and eggs* in New York for breakfast, which were fresh in the churn, and in the nest, the day before, in the neighborhood of *Binghamton and Owego!* and in less than 48 hours from lake Erie!! Such will be the case in three years, we hope.

### Cast Iron Bridges.

Failure of that over the Dee.

The recent lamentable accident caused by the failure of a girder to the railway bridge over the Dee, has created quite an excitement on the subject—and, even though we have frequently referred to it, we now make copious extracts from the evidence, which will be found on another page, given by able men who had examined the subject. The value of cast iron for bridges is not thoroughly understood—especially in this country—and as it is a matter of so much importance, we deem the space devoted to it well occupied.

### Coal Trade.

We have been furnished with the following statement of the coal sent to market by the Schuylkill canal—which we shall publish as furnished weekly.

SCHUYLKILL NAVIGATION.—Week ending August 17th, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	5,385 09
Schuylkill Haven.....	1,043 05
Port Clinton.....	70 00
This week.....	6,499 14
Previously.....	108,091 06
Total.....	114,591 00

### Cheshire Railroad.

We understand, says the *Keene Sentinel*, that the bonds issued by the Cheshire road, amounting to \$500,000, have all been taken at par. Over 80,000 was taken in this county, and more applied for, notwithstanding there is now owned in the county [the largest part in this village,] about \$275,000 in the stock, the assessments on which have all been paid. The road will be opened to Fitzwilliam early in September, and to our village before January, 1848.

We understand a locomotive has been put on the road this side of the Ashburnham summit, and the contractors are busy laying the rails between that point and Winchenden.

This is in accordance with the spirit evinced by the Cheshire delegates to the Boston convention several years since, at which we happened to be present, in relation to the extension of the Fitchburg railroad to Brattleboro'.

We perceive by the papers, says an exchange, that the stock of this road has advanced, within a few days, from 96 to \$1 31—and it will continue to advance, until it ranges with the best New England stocks.

### Delaware, Lehigh, Schuylkill, and Susquehanna Railroad.

We understand, from the *Gaston Whig*, that the stock of this road is taken up, and that the company is now in course of organization.

The object of this company is, we understand, to connect the coal and iron fields of Pennsylvania with Easton, and from thence by railroads over N. Jersey to New York bay.

A strong association of capitalists, embracing citizens of Pennsylvania, New Jersey, New York and Boston completed the subscription of stock on Monday last.

The gentlemen interested in the New Jersey, Delaware and Hudson railroad are prominent in this movement; and connecting links are now formed from the coal and iron fields of this State, through Easton, across New Jersey, to New Brunswick or vicinity, and from thence to the Hudson river opposite New York.

By this route, the coal and iron resources of the Lehigh and Little Schuylkill regions may reach the waters of New York bay, by as short a line of transportation as now exists or can be made to the tide waters of the Delaware river, from the Schuylkill regions. We congratulate our fellow citizens, says the *Whig*, on the prospect of this important avenue for their mineral riches.

This road has long been needed—but like many other important works, it has been delayed.

### Iron Tunnel.

We call attention to a letter, in another column, from Mr. Thomas Motley, C. E., on the subject of the projected iron tunnel over the Menni Straits.—Mr. Motley having taken the subject of cast iron girders for bridges into his serious consideration, since the fall of the Dee bridge on the Chester and Shrewsbury railway, his calculations on the strength of which appeared in the *Mining Journal* of the 12th June, has constructed a mechanical apparatus for testing the powers of all spans of great length, whether of cast or wrought iron. This was exhib-

ited in the Mechanical Section of the British Association, and gave great satisfaction. If Mr. Motley is right, and we have little doubt but that he is, Mr. Stephenson has not more than one-third the strength necessary to support the enormous weight that the construction of the bridge itself, with the passing trains, will impose upon it. We hope Mr. Stephenson and Mr. Hodgkinson will look to it: for if they persevere, and we have a second edition of the Dee bridge affair, their opinions will have but little weight afterwards, and it will bring into contempt the whole engineering talent of the country. —*Mining Journal.*

#### Telegraph.

In the House of Commons, on Thursday evening, Mr. Wakley presented a petition from Mr. S. Porter, claiming to have invented the electric telegraph in 1825, and communicated his discovery to the admiralty—he prayed inquiry into the subject.

**Improved Tubing.**—Our attention has been called to some important improvements recently made in the patent welded iron tubing, by Mr. Cornelius Whitehouse, of the Globe Tube Works, Wednesbury, the original patentee. These improvements, we are assured by a friend who has had much practical experience, places Mr. Whitehouse's manufacture at the head of all inventions of a like character. For the electric telegraph this tubing is peculiarly applicable. —*Railway Record.*

#### Madison and Indianapolis Road.

"The iron rails are laid upon our road," says the Sentinel, "to within 13 miles of Indianapolis, and it is confidently stated that the cars will be whirling into town by the 15th of August."

We are gratified to chronicle the event—as this company have done nobly, in pressing on their work against the difficulties they had to overcome.

#### Providence and Worcester Road.

The Worcester Spy says that "the directors of this road have located their freight depot on Green street, directly south of the Western railroad track, and the two dwelling houses now standing on the premises have been sold, to be removed.

"The engine house and car house of the company on Southbridge street, are going forward rapidly, under the supervision of Tower and Raymond, the efficient contractors. The car house is of wood, 200 feet in length by 34 wide. It was commenced on the 5th of July, and is now enclosed, and the roof covered and shingled. The doors at the ends of the building weigh 1400 pounds each, and will slide up and down, being balanced by weights. The engine house is a very substantial edifice, 90 feet long by 48 wide, with walls 16 inches thick built throughout of the best hard burned brick. Though not put under contract till the 9th or 10th of July, the walls are now ready to receive the roof.

"The rails are now laid on this end of the route, nearly to Farnumville, or about ten miles. We supposed the work is further advanced at the other end. A strong force is at work at the hard cutting on section 20, this side of Millville, and it is in such a state of forwardness that confident calculations are made, if nothing unforeseen should happen to prevent, that the whole line of the road, through to Providence, may be opened for travel by the first of next month."

Such is the progress of a work along the margin of—or not far from—a canal, in this country; and we expect soon to hear a similar report in relation to the railroad from Worcester to Nashua, in N. H.—thus making Worcester almost as much of a railroad focus as Boston. Who will contemplate the rapid extension of the railroad system in New England, and the constantly increasing dividends paid to the stockholders, and hesitate to believe that they contribute largely to the general, as well as to individual, prosperity?

#### Black Stone Canal.

This is to the point—after having written the above in relation to the Providence and Worcester railroad, the annexed article, from the Worcester Palladium presented itself to our notice, and we of course put it upon record for future reference.

"We picked up an old paper the other day," says the Palladium of 4th August, "in which was the following, which purported to have been copied from the Massachusetts Spy of October 8th, 1828.

"MARINE NEWS.  
Port of Worcester, Oct. 8, 1828.

"Arrived yesterday, canal boat Lady Carrington, Capt. Dobson, from Providence, with salt and corn, to Nathan Hurd."

"We understand this to have been the first boat that made a trip on the Blackstone canal from Providence to Worcester. And so important was the canal regarded, that when President Jackson put his celebrated veto on the Maysville road, there was a bill on the table of the House, waiting its turn among a host of others, whose aggregate was not less than one hundred million of dollars, appropriating one hundred thousand dollars in aid of the Blackstone canal company.

"Twenty years have not passed by; the canal, superseded by a better mode of conveyance, has been abandoned by its proprietor, or sold at so low a rate as to amount to an abandonment: and the people themselves have nearly completed a substantial railway between the two places, with their own means, and without aid from the government.—Truly this is a world of change; not the least of which is in man's views of public policy."

Such have been the changes of the past twenty years; who dare predict the changes to be produced within an equal period to come?

#### Railroad Matters in Massachusetts. Norfolk County Railroad.

The Boston Post says that "the Walpole railroad company, incorporated in 1846, to build a road from Dedham to Walpole, and the Norfolk county railroad company, incorporated at the last session of the legislature, to continue the road from Walpole to the valley of the Blackstone, have, in pursuance of the provisions of the act of last winter, united themselves in one joint stock company.

"This road, it will be remembered, was chartered by the last legislature in opposition to the claims of the so-called 'air-line' routes and 'central' routes, the committees and the legislature being convinced that it was the true route by which to divide the triangle formed by the Boston and Providence, Boston and Worcester and Providence and Worcester railroads. It also accommodates the county travel for Norfolk county to its shire-town, Dedham, while it opens the rich valley of the Blackstone to the Boston market, bringing Blackstone, Woonsocket, Slatersville, Uxbridge, and the adjacent large towns, within 70 minutes' ride of this city. We are informed that the subscription books have already been in the hands of the farming interest along the line of the road, who have subscribed liberally. The books will soon be submitted to capitalists, who will lose no time in giving their aid to the remaining route, which thus completes the circle of roads diverging in all directions from this common centre. The statistics submitted to the legislature abundantly proved that the road will be a highly profitable one, and if the statistics had not been made public, still the money, time and labor spent by the rival claimants for building a road over this section of the country last winter, would convince any one that all are convinced of the value of a charter to the successful applicants."

And the Traveller, of 24th July, say: "In connection with the above, it may be well to state that the branch railroad is nearly completed from Dorchester and Milton Upper Mills, passing down through the Lower Mills villages to the mouth of the Neponset river, thence to intersect the Old Colony railroad—known as the 'Dorchester and Milton Branch Railroad.' The terminus of this branch is but about two miles from the contemplated junction of the Norfolk county and the Walpole railroads with the Providence railroad; and it will be seen, therefore, that by building only about two miles, to wit, from the terminus of the Dorchester and Milton branch to the Providence railroad, an unbroken chain of communication will be opened between the Providence railroad and all its branches; the Norfolk co. and Walpole, and the Old Colony and Fall River railroads, and all their branches, with a direct route to Neponset; thereby giving these roads all the facilities of a terminus upon navigable waters, where vessels of any size can come up to the very railroad itself, without a single bridge or obstruction of any sort. This must be a desideratum to the Providence railroad and its tributaries, located as its depot is, in Boston. We hope one day, and that not far off, to see this arrangement take place, and we believe the interests of all the parties concerned will prompt them to its completion.

"Passing along the line of the Dorchester and Milton branch, a few days ago, we were pleased to find it so far advanced, and were informed that the cars would probably run in October next.

"This branch runs near all the manufactories of Dorchester and Milton, and will embrace, we should think, (in connection with the freight on the line,) population enough to render it a profitable investment of itself, without reference to the incalculable benefits which would accrue to it from a union with the railroads above mentioned."

Thus we find the people of the towns and villages on every side of Boston, engaged in the construction of branches and connections between the numerous main lines of railroad, which radiate from the common centre. The extent to which this enterprize will be carried in New England is yet but little dreamed of.

#### Western and Atlantic Railroad, Georgia.

There was, some time since, published in the Augusta (Ga.) Chronicle, the following article—and we believe several others from the same pen—urging the importance of the early completion, by the State, of this road to the Tennessee river at Chattanooga. The writer is evidently well acquainted with the county, its resources, and its rivers, and he brings the subject fairly and fully before the people of Georgia, and we trust that they will not hesitate in the matter, but rather promptly adopt the necessary measures, to ensure the completion of the work at the earliest period.

We consider this as one of the natural outlets of the rich valley of the Ohio and Mississippi, and their numerous tributaries, to the Atlantic; and the people of Georgia and South Carolina are entitled to great credit for their efforts—and their success thus far—in opening the way; a little effort more is only necessary to accomplish the object—and that effort, we are sure, will be made.

**MESSENGERS EDITORS:** As the extension of the Western and Atlantic railroad to its terminus at Chattanooga, at the earliest possible day, is of the greatest importance to the ultimate success of that great work, and to the whole people of Georgia, allow me to submit thro'



your paper a few facts in reference to the country that must and will become tributary to that road, and to the commerce of our cities, to which I desire to invite the calm and dispassionate investigation of the intelligent and reflecting of all classes. To illustrate more clearly the correctness of my position, the reader must be referred to the above sketch of the map of the entire country which will seek this channel to convey its immense products of cotton, corn, flour, bacon, wheat and other provisions to market, so soon as the road is completed to Chattanooga.

The road is already completed to Cross Plains, in Murray county, and it is graded from that point to Chattanooga (except a tunnel of twelve hundred feet in length) a distance of thirty-five miles. To complete the road to its terminus at Chattanooga, it is estimated by competent engineers, will require an additional expenditure by the State, of only three hundred and seventy-five thousand dollars! This done, and it only requires a glance at the sketch of the country around Chattanooga, to satisfy the most skeptical, that the road will bring from Tennessee and Alabama, four-fold more produce than from all the depots now on the road, including Cross Plains. To establish this position, I must introduce a few facts in reference to the navigation of the rivers laid down in the sketch, all of which have been obtained from a gentleman of high character and unquestionable veracity, who has been extensively engaged in the navigation of those streams for several years.

The "Tennessee River" is navigable for steamboats of heavy burden down to Decatur in Alabama, 160 miles from Chattanooga, eight months, and for light boats all the year. There are no dangers in the navigation of this river, between these points—shown by twenty years experience, as not a steamer has been lost or materially injured during this time. The obstacles are the "Suck," and "Boiling Pot"—at one of these places only, do obstacles exist, at the same time. The "Suck" is rapid at low, but not so at high water. The "Pot" is rapid at high, but not so at low water. Both are straight and deep currents. To pass either, in ascending these rapids, boats have to be aided by a cable, causing half to two hours delay. On the river above Decatur, there are 45,000 to 50,000 bales of cotton annually made.

Steamboats can reach Elton, in Gibbs county, on "Elk River," 60 miles, six months in the year, where there are 20,000 bales of cotton yearly grown. This amount of cotton, with the other agricultural productions, will equal in quantity, and perhaps in value, the quantity of cotton on the "Tennessee River"—all of which has heretofore been obliged to pass the shoals, to find a market in New Orleans. The mouth of the "Elk" is fifteen miles below Decatur, where the obstructions commence. The time of shipments for this rich section of country, to return sales, has varied from two to five months, according to mode of conveyance, and stage of water. Shoal tides occur two, three or four times a year, and the shipments made from above

these almost impassable shoals, have often to wait long for a rise in the river. There are at this time on the river above the "Muscel Shoals," four steamboats, of capacity to take to and from Chattanooga, all the cotton and produce that may offer for our markets the coming season.

From Chattanooga to Knoxville, on the "Holston River," is two hundred miles, navigable for large boats six months, and for small boats all the year—barges and small boats come down the Holston 250 miles above Knoxville, and 450 to Chattanooga.

The "French Broad" is navigable fifty miles for small steamers, and a hundred for barges and flat boats.

"Little Tennessee" and "Hiwassee" are each navigable for small steamers, 50 miles, and barges 70 to 100 miles.

As yet, the "Clinch River" has not been navigable for steamboats, but barges and flat boats have been used for many years, 200 to 250 miles.

"Nolechucky" has a flat boat navigation, 75 miles. "Big pigeon" and "Emory" rivers have also navigation for short distances.

This, sir, is an array of facts as imposing as they are conclusive and satisfactory in illustrating the importance, to every tax payer of Georgia, of completing the Western and Atlantic railroad to Chattanooga. Need I enlarge upon these facts? Need I enter into an estimate of the vast productions of that extensive region of country through which all these rivers flow, all of which must seek a market over this road, as soon as it is completed to Chattanooga? I think not; it would be equally a trespass upon your space, and an insult to the intelligence of the people of Georgia. Great as the productions of that vast region of country already are, all experience teaches, that the facilities which such a communication as this road will afford will increase them beyond all reasonable calculation.

What then should Georgia do in reference to the extension of this road? or rather, what will she not do to accomplish so great an enterprise? Am I too sanguine in anticipating that the whole people of Georgia will unite in saying to their legislators at the ensuing session, "You must avail yourselves of any and all the means which the State can command to extend this road?" I think not, and I therefore commit the subject to their consideration and keeping, with the single remark that I have no interest in any road or other improvement in Georgia or elsewhere which may be benefited by this work. A native of Georgia, I desire to see her prosper, and marching on with a firm and steady step to that high destiny which her position, immense resources and the intelligence and enterprise of her citizens should secure for her. These are my feelings and these the influences which operate on

GEORGIA.

#### TABLE OF DISTANCES.

From Charleston to Augusta.....	136 miles.
" Augusta to Atlanta.....	171 "
" Atlanta to Chattanooga.....	135 "
" Savannah to Macon.....	191 "
" Macon to Atlanta.....	101 "
" Chattanooga to Decatur.....	160 "
" Decatur to New Orleans.....	1610 "

#### Railroad Fares.

##### Effect on Trade, Real Estate, Rents and Labor.

We copy the following short article on the influences of high and low fares on cities, from the Charleston Mercury; and we agree fully with "Citizen," that there is a way in which fares may be reduced, and rents, and value of property raised, and all parties benefited—and we agree with him as to the way of producing such a result, viz: "let the property holders in cities be taxed" to aid in the construction of branches to, or even for main roads terminating in such cities—and thus aid in drawing business to its stores and wharves, and then of course rents will increase, property will advance, and fares—from the increase of business on the railroads—will of course be reduced.

Such are the influences of long lines of railroads upon cities in which they terminate, that the city of New York, for instance, cannot afford to do without them. We hazard little in saying that that city would, at this day, be worth more than it now is, if it had been taxed—during the past ten years—a million of dollars annually for the construction of the New York and Erie railroad. Indeed one-half that amount would have been saved annually in the cost of living alone; and the rise in the value of property, on the completion of the road, would have been double the entire cost of the work. These facts will be learned after a while—but even then there are those who will resist such a course, because they hope that the same results will be produced by individual efforts, and they derive the advantage without contributing to the result. Such men are to be found in every community. The writer in the Mercury says:

"Free Trade" complains that the city property is not enhanced in value, and attributes it to the high fares on the railroad. There is an error in this, and the error is the more likely to escape detection inasmuch as "Free Trade" has a great truth at the bottom of his proposition, but he applies it without considering all the parties and interests involved. It is very true that lower fares might and most probably would induce more travel and indeed more trade to come to Charleston, and consequently enhance the value of property, and the rise of rents; but in doing this, who is the loser and who is the gainer? The railroad stockholder has reduced his fares as low as a regard to the value of his stock will allow; reduce the fares below what gives him a fair dividend, and you destroy the value of his property to enhance the value of other property.

But is there no means of reconciling in practice both interests? There is. Let the city aid the railroads which are being built to fall in upon our railroad, and the increase of traffic and travel that will be produced by them, will enable our road to reduce its rates, and thus all who trade with us, and both road and city, will be benefited. Let the property holders consent to be lightly taxed for a short time, and instruct the city council to subscribe to the Greenville road, the Charlotte road, and the Nashville road, and we venture the prediction, that while the stock will repay the outlay, these roads will bring a trade and business to the city which will enable our road to reduce its rates one-half, and raise the value of real estate and rents to double their present range.

Does "Free Trade" mean to imply that the establishment of our railroad has caused a decline in the value of real estate and rents in Charleston? If so, we deem it a sad mistake. If rents and real estate have fallen, the cause lies in other sources. Federal legislation gave us the fatal blow, and we are now only recovering as it retracts its unwise and unjust measures. As a fact of general application, we do not think the value of real estate and rents have receded in the period he fixes; exceptions in particular localities may be found, where property has fallen and rents diminished. The localities of trade and business change frequently, as fashion or channels on which it comes to a city change.—These changes, however, do not prove that the city has lost trade, or its real estate and rents have been depreciated, except in the parts deserted. One locality loses, another gains; this cannot be helped. But on the whole, who thinks Charleston has lost trade by her railroads? Look at her increased exports; at her vastly increased trade with Georgia, Alabama and Tennessee! What do we attribute it to but the railroad? would all this have come, but for the railroad?—And without it, would not real estate and rents and labor be lower than they are?

CITIZEN.

#### Wilmington Connection Railroad.

By the following proceedings of a meeting held at Wilmington, N. C., on the 29th July, we are led to hope that this work will be commenced at an early day. It becomes daily of deeper interest to the travelling and business community, that the link to the great chain should be supplied without further delay. Its importance is to the north—especially the northern cities—as well as to the south; and we hope to learn that the able president, Ex-Governor DUDLEY, of North Carolina, who is now on a visit north, for the purpose of negotiating for iron, and to interest our northern friends in the work, has been eminently successful.

The proceedings of the meeting are taken from the Wilmington Commercial, of 3d August, and are as follows, viz:

The adjourned meeting of the citizens of Wilmington, was held at Masonic Hall to receive the report of the committee of twelve appointed at the meeting on Monday, 26th.

The committee made a partial verbal report, (not having been able to discharge their duties fully,) stating that the increased subscriptions in the last two days had been about \$50,000, and from the sources still to be relied on, there can no longer be a rational doubt, that Wilmington will fully come up to the mark, and do all that has been expected from her.

They further reported that, from a careful investigation of the subject, having access to estimates, etc., it must be a paying stock, the lowest estimate being seven to eight per cent.

On motion of O. G. Parsley, it was

Resolved, That the thanks of the meeting be tendered to the committee, and that they be requested to prosecute their duties until finished. On motion of R. P. Bradley,

Resolved, That to insure the building of the road, \$300,000 must be subscribed by the citizens of this place.

Resolved, That it can, and shall be done, by the 1st day of November! Unanimously adopted.

The meeting was then earnestly addressed by Governor Dudley, Mr. Gregg, of South Carolina, Messrs. O. G. Parsley, D. Fulton, R. Bradley, T. W. Brown, W. O. Jeffreys and the chairman.

It was further

Resolved, That a committee of six be appointed by the chairman to procure subscriptions on the line of the old road.

The meeting then adjourned to meet on Monday, 9th of August.

JOHN McRAE, Chairman.

R. G. RANKIN, Secretary.

Since the above was in type, we have received the Engineer's Report—to which we shall refer hereafter.

#### Buffalo and Mississippi Railroad.

We find the following remarks in the St. Josephs (Ind.) Register, in relation to the proposed railroad from the Lakes to Chicago. The editor says:

"The proposed union of the Buffalo and Mississippi railroad with the Southern Michigan railroad, (already completed from lake Erie hitherward 68 miles) has materially brightened the prospects for the speedy completion of the line, and encouraged those who have been the early and zealous advocates of this route to more substantial action. There appears to be no doubt but that if the necessary amount of stock for grading and laying the superstructure of the road is taken by our citizens and paid in labor or materials, that capitalists from the east will be ready to go on and complete it, and while there is every evidence that La Grange and Elkhart counties will as soon as the busy work of harvest is over, take hold and subscribe the amount, we have an abiding confidence that this county will at that time also, prove herself not behind her neighbors in this great work, so vitally important to us. The whole county should be canvassed for subscriptions, and when the benefits of the road are fully explained, there will be no backwardness on the part of our farmers towards lending their influence and means to its completion.

"On our recent visit to Chicago we found, in conversation with many of the business men of that city, that they confidently expected to have the cars of the Central railroad in their streets within two years. We took occasion, whenever this was mentioned, to show to them that the Central railroad could not and would not obtain the right of way through Indiana—that an overwhelming majority of the citizens of northern Indiana are determined not to follow Esau's example and sell their birthright for a mess of pottage, and that if Chicago wanted a railroad to connect herself with lake Erie, the only way she could obtain it was to extend assistance to the direct route of which we have been speaking in this article. We noticed, or thought we did at any rate, that the most of those with whom we conversed really preferred the direct route, if it could be built.

"On this right of way question we are glad that there is but one opinion among all parties in this county. Both of the promi-

nent candidates for representative are open and firm in their opposition to granting it, as long as there is any probability of the direct route being completed, and this same feeling is the only one in Elkhart and La Grange. We believe, also, that we can rely on some help even from the counties west of this.—Let us be firm and unyielding, and our object will finally be accomplished."

It is possible that this question of "right of way" may be definitely settled; but we can hardly think an enlightened people will resist the extension of the Central Michigan road to Chicago.

#### Railway Casualty Compensation Assurance Company.

We find the following proposition for compensation for—or assurance against—casualties on railroads, in Herapath's Journal for 17th July. The suggestion is a good one, and its consideration and adoption in this country would provide for the families of those engaged on our numerous railroads, who may meet with accident.

MR. EDITOR: I have the honor to submit to your attention the preliminary prospectus of an Assurance Company, having for its object the payment of a fixed sum to the assured for injuries sustained from railway accidents, or to their representatives, in case of death resulting from railway travelling.

In the course of a few days, a select committee of management will be appointed, when a public meeting will be duly convened, and the project duly advertised. Meantime, I would beg leave to state for your editorial notice, in what manner the scheme originated, and on what ground it is intended to be submitted to the public.

For some years past, the subject has occupied my attention, but as I had confident hopes that the safer system of atmospheric traction would supersede the locomotive system, the project was allowed to lie dormant; and I now revive it, seeing that the atmospheric system has been abandoned by the railway company to whom that great experiment was entrusted by parliament.

From the calculations I have made, and from numerous fearful casualties that have lately occurred, I am firmly persuaded of its necessity as regards the public interests, and of its soundness as a commercial speculation. You will observe that the principle upon which premiums on life policies are calculated, will not apply to the case here; the premiums on casualty policies are therefore to be paid but once, and not annually, as charged for by life and other assurance offices; and the contingencies being so remote, the premiums are fixed at a proportionately low rate, being based on the actual number of injuries sustained annually by the public, and upon the comparative risks incurred by, and responsibility attached to each class of railway servants.

The project has met with very flattering approval in many quarters, and I have every reason to believe that most of the leading railway companies would find it to their interests at once to adopt it, as a certain means of providing compensation for casualties sustained by their own servants; but, inasmuch as the measure of public confidence accorde



to such an institution will mainly depend on the high and independent position of the directors to be appointed, I have ventured, before issuing any public advertisements, to submit the proposition to a select few, and especially to you, in the hope that they and you will see fit, on public grounds, to express a favorable opinion of the project.

It is proposed, that the subscriptions paid by the assured, shall be carried to a "Reserved Fund," which shall be kept totally distinct from the share capital of the company.

The tables of premiums are calculated at a rate to bring them within the means of all classes of railway travellers, and the statistics upon which these are founded, have led to the conclusion, that the "Reserved Fund" would probably amount to two millions of money, paid up by half a million of subscribers within the first two years.

Of this estimated half million of subscribers, it has been ascertained that the "Commercial Travellers," as a body, would influence 70,000 subscribers, and that the "Engine Driver's Association" would influence 30,000 more, including every class of railway servants.

It is, perhaps, necessary, that I should here direct your attention to the only argument hitherto urged against the proposition, viz: that the public will not take it up, because it is supposed that less accidents occur now by railway, than formerly by stage coach travelling, taking mile for mile and passenger for passenger.

This argument is founded on a popular error. There is no data for it in existence; and, were there any, no average could possibly be worth anything, unless it included the number of passengers, and the mileage travelled by other modes of conveyance over all kinds of public roads, (including high roads, turnpikes, cross roads, etc.) all of which are now practically superseded by railroads.

The average number of railway casualties are reported officially to be equal to 1 per annum to every 10½ miles of railway.

There is no means of ascertaining the proportion of casualties under the old system of travelling; it is, therefore, contended that a mere comparison between the number of miles travelled, and the number of passengers carried by stage coaches and by railway would afford a very inaccurate test of the relative risks encountered by the public under either system.

There is no fair analogy to be drawn between two systems so utterly different as regards speed, etc.; but were it even possible to make a correct comparison of the dangers to which a given number of trains, and all other public conveyances are subjected, it is very questionable whether that comparison would give a result in favor of the argument used against the proposition now submitted to you.

At the present moment, to say nothing of the future, there are as many, if not more, distinct trains running at the same time between any two given places, on any day, as there were formerly stage coaches, each train carrying eighty passengers on an average, or

five times the full complement of a stage coach.

There being, then, five times as many travellers now as formerly, the risks run by the public are proportionately increased, above and beyond the relative dangers inseparable from either system.

This I assume to be a fair argument in favor of the assurance company; in addition to which there is another far more important consideration, namely, that such a public institution would be the means of exercising a most wholesome and vigilant control over all railway mismanagement.

The public should support the proposed company, because it will tend to insure, to the greatest extent, safety in railway travelling. The Compensation Assurance Company will operate as a constant guard and check upon the railway companies; the shareholders will be always upon the lookout for danger—always prompt to point out any practice inconsistent with safety, and to denounce any management where proper means are not adopted for the protection of the public, and they will be astute to punish negligence or want of proper attention.

The railway interest should also support the company, because anything which tends to the general safety of railway travelling tends directly to the increase of railway receipts. The proposition to insure railway servants should be popular with railway directors, as it would relieve them from a very painful consideration in the event of an accident to a servant; the knowledge that his family, during his sickness, or after his death, would have some adequate relief and compensation would greatly relieve the direction from a most painful responsibility.

The near approach of the half-yearly meetings of all railway companies, offers a fit opportunity for bringing the project under the special notice of the different proprietaries; it is therefore hoped that the respective chairmen of the leading metropolitan railway companies will not fail to recommend it to the general adoption of railway companies, as a certain means of providing compensation for any injuries sustained by their own servants while employed in the discharge of their several duties.

It is upon these grounds that I have the honor to claim your attention to the project, being, as I have before stated, firmly persuaded of its necessity as regards the public interests, and of its soundness as a commercial speculation.

EDW. WM. CORBES.

10 New Palace-yard, Westminster.

#### Railroads at the South.

The following extract from a letter of a highly intelligent merchant, now in Boston, says the Charleston Mercury, has been handed to us for publication.

"I cannot but feel a deep interest in the discussions that are now going on relative to the various lines of railroads—about those in Alabama, Tennessee, etc.; there can be no mistake that they all tend to increase the trade and commerce of Charleston, there can be no difference of opinion about the Greenville and Charleston roads; by the way, it seems to me that the plan pursued by the ci-

tizens of Nashville is the true one; as all are interested, so all contribute and participate in the profit or loss. I am willing to have the city go in strong for what is without doubt to benefit her; but I look upon the plan of connecting the Wilmington road with the South Carolina road, about *Manchester*, or the continuing the roads from Raleigh, through Fayetteville and Cheraw, to Camden, as both of them very injurious to the interest of Charleston, and schemes in which her citizens cannot be expected to participate. That there will be a railroad communication in place of the present steamboats between Wilmington and Charleston, I entertain not a doubt. The bulk of the travelling community are not satisfied with the present mode, nor with steamships to New York, and will not be contented till they get a railroad. Now the only railroad that we can go for, and this I think we ought to encourage, is to connect Charleston and Wilmington by the way of Georgetown, etc. I am aware that throughout the interior they are in favor of the *upper*, or what is termed the *Metropolitan* route, and many say that will be built anyhow, whether the lower route is or not. It may be so, but when built, it kills the Wilmington road, and takes away a great deal of trade from Charleston. In the general scramble that is going on, we must try and look out sharp for ourselves."

#### Central (Ohio) Railroad.

Pursuant to notice generally given, says the Zanesville Courier, of 29th July, the books for subscription to the capital stock of the "Central, Ohio, Railroad Company," are opened to day, at places designated, in the three towns of Columbus, Newark and Zanesville. The books for this place may be found at the county auditor's office, and are under the supervision of Messrs. Convers, Sturges Mitchell, Raguet and Brush, or three of them.

The object of the present subscription, as set forth in the advertisement, is the organization of the company. It is absolutely necessary for our citizens to put down such an amount as will secure to them a proper representation in the directory to be elected.—And it is almost equally essential that such a further amount should be set down as will be an earnest of our intention to build, at least, such portion of the road as will be of most advantage to our community, and of most speedy profit to the stockholders.

We are led to speak of these things, from our knowledge of the fact that our friends in Columbus and Newark, particularly the latter, intend to make handsome subscriptions, and we should regret to see the efforts of our own citizens eclipsed.

Too much has been already said and done to leave any necessity for arguments from us or others, to prove the innumerable benefits to our town and county, which must result from railroad connections. The people, we are glad to believe, are wide awake on this subject, for they have examined it for themselves, and neither elaborate arguments nor additional facts, are needed to convince them, when they are already satisfied. Fully alive to the

importance of railroads, anxious to see them not only projected, but in operation, so as to give them an iron grasp upon the resources and business of by far the larger part of central Ohio, it behooves them to look to it, that what they hope for shall be secured. This can be accomplished if they would only undertake to help themselves. Calling upon this, or that, particular class of people, never effected anything yet, and will effect nothing now. This road is to be built by men of moderate means, business men of ordinary ability, and not by capitalists. Depend wholly upon the latter, fellow citizens, and, for twenty years at least to come, you may whistle for your railroads—no locomotive will do it for you.

Let us have, then, a good subscription today and to-morrow; let each man fix his mark, and come up to it without loss of time. There is not a bit of fear that too much will be subscribed, and there is no good reason for holding back on that account. Walk up to the book, friends, put down your names for as much as you can muster, and, as a loan to yourselves, you will find, our word for it, that it will be the best loan you ever made.

The remarks of the editor of the *Courier* are in the right spirit. It is not upon capitalists, but upon the middling interest, that we must rely for subscriptions to railroads. It was not the rich men—as a body—but the business men of Boston and Massachusetts, who built her railroads, and so must it be in Ohio and elsewhere.

#### Erie Canal at Buffalo.

We find the following article in the *Buffalo Courier*. It indicates a disposition to adopt measures which shall provide better accommodation for the business of the lake and canal at Buffalo—and we hope that it will be promptly commenced, and completed at the earliest possible period.

#### The Canal, the Harbor, the Canal Board.

—The examinations made by several members of the canal board, at this point, have convinced them of the necessity of providing more room for the accommodation of the lake commerce. The increase of business this season, at this point, over last, is truly astonishing. The amount of tolls received at Buffalo, from the opening of navigation to the 22d July, is as follows:

1847.....	\$648,819 05
1846.....	357,507 68
Increase.....	\$291,111 37

The increase for the third week in July has been large, which shows that the augmentation will continue through the season. The following shows the increase at Buffalo, Rochester and Oswego:

	1847.	1846.	Increase.
Buffalo....	\$57,760 92	\$21,784 93	\$35,975 99
Rochester..	6,923 23	4,464 38	2,458 85
Oswego.....	9,759 79	7,376 23	2,384 56

While the increase at Buffalo has been 164 per cent., at Rochester it has been only about 33½, and at Oswego only about 28½. These facts go to show clearly and conclusively that we must have more harbor room and more canal facilities.

The comptroller, Mr. Flagg, has come to the conclusion, we understand, that something must be done, and that as speedily as possi-

ble, to obviate the difficulties which now interpose to the facile transaction of business at this point.

The following general plan was submitted to the council, at a special meeting held recently, by the mayor, addressed to the canal board, and adopted by the council:

#### To the Canal Board of the State of New York:

The common council of the city of Buffalo submit for your consideration, the following general plan for the enlargement of Buffalo harbor, and the Erie canal, with the view of increasing the facilities for the transportation of property at this port.

1. Taking off the elbow and the widening the creek in addition to its present width as far up as it is practicable—say 200 to 300 ft. in width.

2. A ship canal from near the mouth of the Buffalo creek, parallel with the Erie canal, 30 feet wide, or of sufficient width and capacity to pass a volume of water large enough to supply Black Rock harbor and the Erie canal east of that place.

The removal of the traverse pier, or upper section of the Black Rock dam, and so far modifying the pier as to connect it with the main shore below Sandytown point, leaving the channel of Niagara river between Bird Island and the American shore, open and unmolested, as it was originally.

The construction of a wall, or breakwater, from the mouth of the Buffalo creek as far out as the original bank of the river, to Black Rock, to prevent the further encroachment of the lake towards the canal.

3. A ship canal and slips in the peninsula between the lake and Buffalo creek.

4. The excavation of the Hamburg St. basin, with one or more cross slips from thence to the upper part of the harbor.

5. The opening of the south channel from the upper part of the present harbor to lake Erie, and asking general government to construct the necessary pier to protect the entrance thereto.

6. The construction of a sea wall, or some other suitable work, to four mile point, to prevent the further encroachment of the lake and the flooding of the flat lands in that direction.

The foregoing general plan contemplates an inside work, which when completed, will extend from the toll bridge to lower Black Rock, a distance of four miles.

In executing the plan, it is believed that the state and national government can co-operate with the city, and, although it may require years to complete the work, yet, if commenced, and steadily prosecuted, each year will add to our commercial facilities, and when completed it will form a capacious inner harbor, well adapted for the transshipment of the immense commerce of the lakes and canal.

It encircles that portion of the city which is bounded by water, and has a strong tendency to unite the several interests of our citizens, and at the same time will meet the public demands for an increase of room, better than any other plan which has been proposed

and at less expense. It is all contiguous to the Erie canal, and may be regarded as an extended basin, for the mutual accommodation of canal boats and the lake shipping.

#### DEE BRIDGE FAILURE.

"Considerable interest has been caused among the profession through the failure of a cast iron girder bridge over the River Dee, near Chester, which took place on the 24th May last; and in consequence of the accident involving the death of some individuals, a coroner's inquest has been held, which lasted several days. It is not our intention to give the whole of the evidence, as much of it was extraneous: but we shall select those portions which immediately apply to the construction and failure, and then offer some remarks of our own, together with a wood engraving of the girder, showing the fracture and a section.\*"

Mr. Thomas Alfred Yarrow, who was selected by the coroner and jury to examine the bridge, said—I have been a civil engineer for the last 12 years. I have held the appointment of bridge master for Chester for some time, and have no connection at present with any railway. I have made an examination of the railway bridge over the Dee, and I now read my report of the inspection.

*Report.*—"Upon examining the bridge, I found that the masonry and iron work, with the exception of that part of each which had fallen, were in an apparently sound state.—The principle of the bridge is that of trussed girders of cast metal resting upon stone piers and abutments, which are parallel to the course of the river, but askew to the railway above. Each girder consists of three pieces, having vertical flanges, with bolts at the joints, and in addition to being bolted to the full depth of the girder, each joint is surmounted by a segmental piece, to receive which, notches have been cast in the upper surface of the girders. The tension rods descend in an oblique direction to each joint, and are carried horizontally between them; they consist of separate bars of wrought iron, which are secured to each other laterally by clips. The portion of the bridge which has fallen consists of one outside girder on the Saltney side of the river, with the attached platform and transverse tension rods. Two stones, composing part of the string course, and acting as a bed for the girder on the Saltney abutment have fallen, and also the corner stone at the acute angle of the opposite river pier upon which the broken girder rested. The girder itself is broken, having two fractures in the length near to the Saltney abutment, and one in its centre.

"Having premised this short description of construction of the bridge, and its present appearance, I may proceed to detail the facts which I have remarked during my investigation, and which have enabled me to arrive at a confident conclusion as to the cause of the accident. My attention was in the first instance directed to an examination of the frac-

\* We merely give the evidence as published in the *Civil Engineer & Architects Journal*—omitting the editor's remarks and engraving.



tured ends of the girder, for the purpose of ascertaining whether any defect had existed in the castings. The appearance of the broken surface led me to conclude that the castings had been sound, and the tension bars, as far as they have yet been recovered from the water, are unbroken.

"From calculations which I have made of the strength of the girders, taken from an actual measurement of the section at the point of fracture, I find that, independent of any additional strength that may be obtained from the tension bars, the girders alone are capable of sustaining a much greater weight than could under any ordinary circumstances be placed upon them. The breaking weight of each girder I calculate at 74 tons, supposing the weight to be concentrated over one point, and of both girders 148 tons. But it is an admitted principle that a beam will carry twice the weight, distributed over its whole surface, that it will bear upon one point.—We can therefore conclude, that twice the above weight,  $148 \times 2 = 296$  tons, is the breaking weight of one bay or opening of the bridge for one line of rails. The weight of girders and platform is, at a rough calculation, about 90 tons, which must be deducted from the foregoing quantity; we have therefore 296, less 90, equal 206 tons as the breaking weight; and this is altogether without reference to the tension bars.

"From the above facts, I concluded that the accident did not arise from the breaking of the girder as a primary cause, and I therefore directed my attention to the state of the masonry, and to a consideration of its sustaining power. Having carefully examined all the displaced stone and their respective beds, I found that one, previously named as forming the acute angle of the river pier, and upon which one end of the broken girder rested, was totally inadequate, in its form and bearing surface, to its important situation.—This stone had sustained nearly three-quarters of that portion of the flange of the girder which rested upon the pier. The area of its lower surface is 24ft. 6in., of which 11ft. 6in. only was bedded on the pier, leaving 13ft. to overhang as a cornice. The stone was not connected by cramps or ties with the adjoining masonry of the pier. The railway over the whole bridge is curved. The broken girder supporting the outer side, and being subject to a greater lateral force than the girders forming the inside radius of the curve, I consider that this lateral force, acting during the passage of each train, must have so far loosened the inefficient masonry, as to cause a displacement of the girder itself and its consequent fracture."

Mr. Robert Board, superintendent of the Mauseley Iron Works.—The girders of the Chester railway bridge over the Dee were manufactured at those works. They were tested before sent to the railway. Each girder was placed side by side and tested by 50 tons of iron being put on them in the centre. We took the deflection on every five tons, but have not got the particulars of those deflections. The ordinary pressure on the girders passing over them would not exceed 50

tons. After the girders had been tested we found a flaw in one of them; it was a mere honeycomb, and it was rectified before it was sent away. I have since examined the girder and found that the accident had not resulted from the flaw. The fractures were in the sound metal. I superintended the fixing of the girders. There are many railway bridges of the same kind. On the Trent Valley line there are eight of the kind. It is not opened to the public as yet, but on the Blackwall railway there are several that have had heavy trains passing over them for years. The one over the Dee is the largest. I never heard of any of them giving way. Had been several times to view the bridge when trains were passing over it, and found the deflection very trivial, not much more than an inch.

Major General Sir Charles William Pasley.—I was the government inspector general of railways when the Chester and Holyhead railway was opened. I surveyed the bridge over the river Dee on October 20th, and reported it as safe. I compared the plans with the actual building, and examined it in such detail as I deemed necessary. It is an iron girder bridge, of three openings or spans of 98 feet each; wrought iron tension rods are used to strengthen it. I always was of opinion, and am so still, that these tension rods are not of great use, because I consider that the expansion of wrought and cast iron from heat differs in some degree, although not very greatly; but that iron girders being very massive and the tension bars thin and of small dimensions, the sun may act on the wrought iron rods very considerably and less on the cast iron girders; and supposing them to be adjusted for a moderate temperature the intensity of hot weather may destroy their proper proportion, and do away with the benefit of the tension. I may here state that wrought iron, when acted upon, will elongate considerably without breaking, but cast iron will not without breaking. There have been a number of bridges of this description erected on railways in various parts of England, both before and after I held the appointment of inspector general of railways, none of which, with the exception of this one, ever failed. They were not quite of the same extent, but I will allude to a cast iron girder bridge at York, over the river Ouse, of the York and Scarborough railway, which has two openings of 70 feet span. The least depth of the iron girder on that bridge is 3ft. The least depth of those on the Dee bridge is 3ft. 9in.; and as the bridge at York and other similar bridges have stood, I concluded that this one would, as it had an extra depth. I may also mention another bridge over the Tees, at Stockton, although I have not seen it. I may vouch for what I say to be correct. It has a span of 83ft. 4in., and the least depth of iron is 3ft.

Mr. R. Stephenson said it was 87ft.

General Pasley.—I thought it was what I stated, but you may be correct. The flange on this bridge is greater than on others. I have frequently mentioned to engineers that wrought iron tension rods would do but little good. In my inspection of a cast iron girder

bridge, on the Syston and Peterborough railway, built by Mr. Liddle, the resident engineer, I found that he had omitted tension bars, and in my report to the Earl of Clarendon I approved of the omission, and considered it a preferable construction. It appeared that Mr. Liddle could not get the tension rods in time, and therefore he built the bridge without them. Having mentioned this repeatedly to engineers, and having been given to understand that Mr. Bidder and Mr. Gooch have made experiments with a view of testing the strength of girders without rods, I am informed that the trial was in favor of the latter. As to the cause of the accident—it has been stated that some time after the Shrewsbury and Chester railway was opened and after I had inspected it, a girder was cracked, and was replaced by a new one.—This circumstance which I did not know, and which was never reported to government, coupled with the fracture of this one, induces me to think they are not safe, and that it is the mere cast of a die between their danger and safety. I consider that the tension rods are of very little use indeed. The tension rods are connected with the girder alone, as if they were part of it. They have no independent support, and there is a difference between this bridge and Mr. Stevenson's former iron girder bridges. In all his former girder bridges there is a connection from girder to girder, on the central pier or piers, from one end of the bridge to the other, so that when the pressure is on one girder, the other girder in the same line contributes to assist. That is the case with the one on the river Ouse at York. The horizontal portion of these bars appears to be useless. The oblique tension bars would be of use if the upper ends were fixed to some independent support to each pier, and similar independent support on each abutment, and if the standards or support over the abutments had tension bars extending inland to resist the heavy weight going over the extreme bays or openings of the bridge. There is a swing bridge over the river Wensham, at Norwich, strengthened on this principle, and which is extremely judicious. In this case I consider that the girder broke on a train passing over, and to the weight of the ballast that had been thrown on it in the course of the morning. The masonry gave way from the girder breaking, and from that cause alone. I examined the girder; and the castings seemed very good, and I believe it is generally admitted that they are good; but the girder was too weak after the ballast that was put upon it. The girder was far enough in the masonry to support it. There was quite bearing enough to render it secure. I do not think the engine driver suddenly putting on the steam would cause the engine to bound with such force as to break the girder. I saw nothing to throw the carriages off the rails on the bridge, which had strong guard rails. I should say that no girder could have withstood a deflection of  $5\frac{1}{2}$  inches. It would have broken short at once. A continued deflection of four inches must have broken it long before this occurred.

Mr. Robert Stevenson put in a written re-

port on the accident; from which it appeared that on the day it occurred, and only a few hours previously, he had narrowly inspected every part of the bridge, and saw nothing to indicate weakness. He had carefully examined into every circumstance connected with the disaster, and for reasons which he gave, was satisfied that it arose from a violent blow against the girder, near to the abutment on the Saltney side, caused by the train getting off the rails. The report said:

"It has been suggested that the unequal expansion and contraction of the girder, during great changes of temperature, might probably interfere with the uniform strength of the metal. It is impossible to deny that this circumstance does sometimes interfere with the strength of cast iron beams, but generally this influence may be regarded as confined to castings where the thickness of the different parts vary considerably. In the present case the form of the castings was carefully studied, and with only such small deviation from absolute uniformity in all the thicknesses of the different parts of the section, as practice has long proved to be justifiable.

"With regard to the competent strength of the structure, I concur generally in the deduction drawn by Mr. Yarrow, in which I am confirmed by an extensive experience in the construction and use of similar structures, tried under circumstances that demonstrate their capabilities to meet all the ordinary contingencies of railway traffic."

Mr. James Kennedy, of the firm of Bury & Kennedy, Liverpool, was recalled, and confirmed the opinion he had given at the last meeting as to the probable cause of the accident. The girder might have given way either from a blow, or the extra weight of ballast and the train on it. Cast iron girders were capable of sustaining in the centre 70 tons; but if the tension rods were not perfectly adjusted, he did not think the bridge safe for ordinary trains. He did not think damp ballast placed on the bridge would affect the temperature of the girders so as to cause them to break.

Mr. H. Robertson, the engineer of the Shrewsbury and Chester railway, was next called, and said—I have examined the bridge since the accident. My opinion is that the bridge broke under the weight of the engine and train, increased to a large extent by the laying down of 25 tons of ballast on the platform just previous to the accident. The witness then handed in a lengthened report which he had made to the directors, respecting the failure of the bridge, in which he stated that the fracture spoken of by Mr. R. Stephenson as having been produced by a lateral blow, was, in his opinion, caused after the girder had fallen, and that the fracture which caused the bridge to give way was that in the centre. He considered that the tension rods tended more to weaken the girder than to strengthen it.

Mr. Robertson then read the following report which he had made to the directors of the Shrewsbury and Chester railway:

"I minutely examined the Dee bridge on the Chester and Holyhead railway on the oc-

currence of the accident. I have caused drawings to be prepared, and also a model, showing the details of the structure and the fragments of the beam, in so far as now discovered; and to these I would refer you, instead of attempting to give a written description of the bridge (These were produced in court, for the inspection of the coroner and jury.) You will perceive that there are two principal fractures in the beam—one near the centre, 5½ feet from the west abutment in the middle portion of the girder; the other in the portion of the girder next to the abutment, and 20 feet from its fence. The latter fracture appears to me, from its form, and especially from the position in which the fragment lay, as shown in the ground plan taken the morning after the accident, to have been caused by the fall; any disturbing cause previously to the fall is quite inconsistent with the close proximity of the fragments. The fracture at the centre, from the position of the fallen portion, and of the middle tension rod wrapped over the girder, and especially from the form of the fracture, appears to me to have first taken place. This fracture I consider to have resulted from the weakness of the top flange, which was compressed and broken from the strain arising from the rolling weight of the engine and tender, and the vibratory motion of the structure itself, increased to a large extent by the deposit of 25 tons of ballast on the roadway immediately before the accident. This compression is remarkably evident by the bulging out of the metal at the point of the parting at the top of the web, or vertical portion of the girder.

"In estimating the strength of the girder, I am of opinion that the tension rods, from the form of the section of the girder, weakened it, and threw an undue strain, by compression, on the top flange; but, assuming that they did not weaken it, and applying the formula as given by Eaton Hodgkinson, F.R.S., to the girders—by one formula, the breaking weight is equal to 61½ tons; and, by the other, the breaking weight is equal to 76 tons. Now, it has been an established rule in practice, that one-third or one-fourth of the breaking weight is the safe working weight to which a girder should be subjected, and the larger the size, the smaller ought to be the proportion; taking, therefore, one-fourth of 56 (the breaking weight) it follows that the safe weight to which one of the girders ought to be subjected is 14½, and the two girders 37 ton. The weight of the timber, platform, beams, rails, chairs, etc., exclusive of the girder, according to an approximate calculation I made, is 19 tons 6 cwt.; and, adopting the rule that a uniform weight is diffused over the beam, is equivalent to one-half that weight suspended at the centre, this becomes equal to a weight suspended at the centre of 9 tons 13 cwt. The equivalent weight of an engine and tender of 33 tons 10 cwt. 2 qr., suspended at the centre of the beam, I estimate at 33 tons—making a strain of 41 tons 10 cwt. against 37 tons—the safe working strain to which the bridge ought to be subjected. However, on the afternoon of the accident, immediately previous to the passing of the

train, the bridge was subjected to an additional strain, by the laying of five inches of broken red sand stone ballast, amounting to a weight over the bridge of 25 tons; which is equivalent to a weight suspended at the centre of 12 tons 10 cwt. This makes a total of 54 tons against the safe strain of 37 tons formerly stated; and the last addition appears to me to be the immediate cause of the accident. In these calculations, however, it is assumed that everything is at rest, and that the forces applied are those resulting from direct pressure, while the evidence shows that there is a vibratory movement of the whole structure to a large extent; and there is, besides, a percussive movement of the engine and tender, which, with a heavy long boiler engine, with outside cylinder, is considerable.

"The weight of the structure, and of the train in motion, will be about 164 tons in all, and the strain from this cause must be added to that formerly stated. This strain, though it cannot be ascertained by accuracy of calculation, founded on experiment, experience shows to be great; and I am of opinion that it formed a large element in the strain which broke the bridge down. There is also the whole gross strain arising from the pressure and the percussion of the structure and its load, with the apportionment of that strain between the girders: for I am of opinion that, from the loose and independent connection of the girders, and the giving of the structure, the strain may have been unequally divided between the girders. These investigations, independently of the evidence of the eye-witnesses, lead me to the conclusion, that the girder broke in the middle from its weakness to resist the strain, increased by the laying on of the ballast.

"The opinions of Mr. Stephenson and Mr. Locke, founded on the alleged facts as to the paint on the tender, the broken carriage wheel, and the snips in the chairs, appear to fall to the ground, as they must have been misinformed on those particulars, which can all be disproved.

"HENRY ROBERTSON, Engineer."

"Chester, June 15, 1847."

Captain Symonds, R.E., and Mr. Walker, who were retained by government to examine into the cause of the accident, presented to the inquest a very lengthened report, the following are extracts from it:

"That the bridge was of sufficient strength if the cast and wrought iron be supposed to act together, each taking its equal proportion of the strain.

"That there is great difficulty in ensuring the joint action, and that if this is a part of the principle of the bridge, we do not approve of it.

"That neither the wrought nor the cast iron taken, separately, was sufficient for perfect stability; and that, to have ensured this, the cast iron girders alone should have been of sufficient strength to carry the whole weight, with an ample allowance for the various circumstances (some of them peculiar to this bridge) which we have explained.

"That, with the exception of the bends, or warps in the top flanges, the castings are of



good quality. That the wrought iron is also of good quality.

"That the stonework of the piers and abutments is good; and in no way contributed to the failure.

"We now come to the question, what was the immediate cause of the accident? As the bridge had carried as great or greater loads before, the suggestion that there was something peculiar in this case, as the end of a rail having projected from the straight line and been struck by the engine, or the tender having got off the line and struck the girder laterally, is not improbable. The engineers who were called by the railway company considered that the breaking of one leaf of the wrought iron that was next the tender, the piece that was struck out of the girder, and the damage to the abutment wall, are all proof of the fact that the accident was caused by the tender having got off the line, and broken the girder by a heavy lateral blow. We refer to the evidence of Mr. Robert Stephenson, Mr. Locke, Mr. Vignoles, and Mr. Gooch, who were also of opinion that the strength of the girder was sufficient. As to this latter point, we have already stated the principles upon which alone this conclusion could have been arrived at, and our own opinion. As to the tender, or the carriage immediately behind it, having got off the railway and damaged the abutment walls, there is no doubt; and if the tender struck the side of the girder, when the latter was under great strain, a fracture was the probable consequence. This is on the presumption of the tender having got off the line from some other cause than the breaking of the girder.

"Our own decided opinion, formed from the statement we have made as to the strength of the girder, and from the position in which the broken pieces were found, the two halves being each in a straight line, or nearly so, but at an angle with one another, is that the first fracture took place in the centre of the girder, and not at the end which rested on the abutment.

"In corroboration of this last view, the addition that was made to the permanent weight of the bridge, immediately before the accident by the ballast spread over it, and the fact that when a weight, partly permanent and partly passing, but which together formed a considerable portion of the breaking weight of the girder, are in continual operation, flat girders of cast iron suffer injury, as their strength becomes reduced; and if, when this has taken place, the momentum of the passing weight is increased by an irregularity of the rails, or in the motion of the engine, to which the best made and managed railways are subject, a fracture is likely to follow. The probability of this having been so in the present case, and the fact of the tender having been off the line, and having been drawn up with great violence, so as to break the end piece of the girder by the blow, are to be weighed against each other in assigning the cause of the accident.

"Having reference to other cases, it is proper to state that Mr. Robert Stephenson stated in his evidence that he had erected a number

of bridges, on the same principle as this, and that this was the first failure. We have not examined these bridges; they are stated to be all of a less span than the Chester bridge, but that the proportions of the parts are proportionally less; and it may perhaps be argued from the above numerous examples, and the opinions of the eminent engineers opposed by this one failure, that we are mistaken in considering the weakness of the girder to be the cause of the failure in the present case, and unnecessarily cautious in the objection we entertain, and have expressed, as to the principle of this bridge and its security; but as we entertain these opinions very decidedly, it is our duty (by no means an agreeable one) to express them."

*The Verdict of the Jury.*—After an hour's deliberation, the foreman, Sir E. Walker, returned the following as the unanimous verdict of the jury:

"We find that George Roberts, John Matthews and Charles Nevitt, were accidentally killed on the evening of the 24th of May last, in the parish of St. Mary-on-the-Hill, in the city of Chester, by being precipitated along with a train of carriages on the bank or bed of the river Dee, from the breakage of one of the 12 cast iron girders constituting the railway bridge over that river.

"We find also that Isaac Powis died on the 26th of May, from injuries he received at the same time and place, and the like cause; and we find that Thomas Anderson came by his death on the 24th of May last, in the parish aforesaid, by being accidentally thrown from the tender on to the rails.

"We are further unanimously of opinion, that the aforesaid girder did not break from any lateral blow of the engine, tender, carriage or van, or from any fault or defect in the masonry of the piers or abutments; but from its being made of a strength insufficient to bear the pressure of quick trains passing over it.

"We feel that the 11 remaining girders, having been cast from the same pattern and of the same strength, are equally weak, and consequently equally dangerous for quick or passenger trains as was the broken one.

"We consider we should not be doing our duty towards the public if we separated without expressing our unanimous opinion, that no girder bridge of so brittle and treacherous a metal as cast iron alone, even though trussed with wrought iron rods, is safe for quick or passenger trains; and we have it in evidence before us, that there are upwards of 100 bridges similar in principle and form to the late one over the river Dee, either in use or in the course of being constructed, on various lines of railway. We consider all these unsafe, more or less, in proportion to the span—still, all unsafe.

"We therefore call upon her majesty's government to institute such an inquiry, into the merits or demerits of these bridges, as shall either condemn the principle, or establish their safety to such a degree, that passengers may rest fully satisfied there is no danger, although such bridge may deflect from  $1\frac{1}{4}$  to 5 inches."

The coroner stated that that portion which related to the death of the deceased could only be taken as their verdict. Their recommendations, however, he would forward to the railway department of her majesty's government; and no doubt the press would give them due publicity.

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.** Proposals will be received at this office, and at the office of the Resident Engineer, in Gardiner, until the 21st of August, for the Grading and Masonry of 21 miles of this road, extending from Bowdoinham to Augusta.

The line of road and the place and profiles will be ready for examination on the 19th of August, after which time any information in relation to the work can be had at the engineer's office in Brunswick and Gardiner, or of the resident engineer on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to complete the work.

The remainder of the line from North Yarmouth to the depot of the Portland, Saco and Portsmouth Railroad in Portland, 15 miles, will be ready for contract on the 18th of September, of which due notice will be given. **GEORGE S. GREENE,**

Engineer K. & P. R. R.

ENGINEER'S OFFICE, K. & P. R. R.  
Brunswick, July, 12, 1847. }

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**NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Railroad Office, in Lewiston, until the 17th of August next, inclusive, for the Grading and Masonry of the 3d Division of this Road, extending from Green to Belgrade, near Snow's Pond, about 20 miles.

Profiles will be ready for examination on and after the 10th of August, and all necessary information will be given, either at this office, or upon application to the resident engineers on the line of the road.

Satisfactory bonds with sureties shall be given by the bidders, if required.

On the 16th of August, the Engineer will be prepared to accompany Contractors over the line of the road, commencing at the eastern end of the Division in Belgrade.

**HOBART CLARK, Agent A. & K. R. R.**

**EDWARD APPLETON, Engineer.**  
Railroad Office, Lewiston,  
July 12, 1847. }

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**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

**C. B. STUART, Engineer.**

Hamilton, July 30, 1847.

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July 31—3m

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**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.  
2v1917

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norris-town Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Stiers, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinkley & Drury, Boston, will be promptly executed.

**FRENCH & BAIRD.**  
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

**JOHN F. WINSLOW, Agent.**  
Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,**

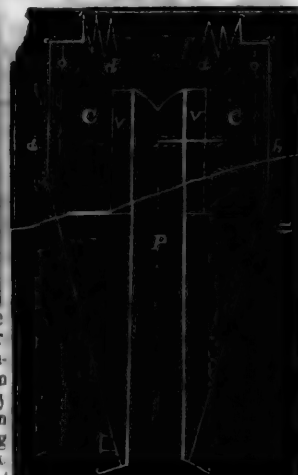
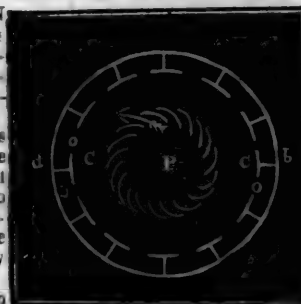
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

**Railroad Work.**  
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

**Cotton, Wool and Flax Machinery**  
of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
a45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

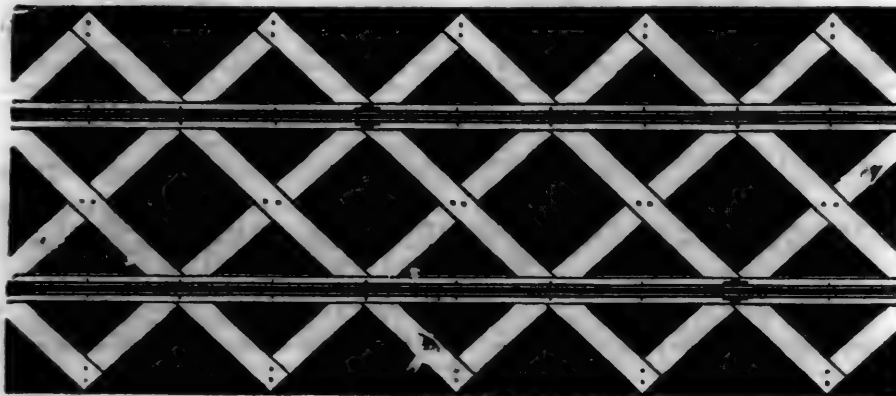
CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestles for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 33f

## LAP—WELDED WROUGHT IRON TUBES

FOR  
**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

38 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Dec. 25, 1y\*—Pres't. Mt. Savage Iron Works, Maryland.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

West Troy, May 12, 1847.

ANDREW MENEELY.

1y\*21

**P**IG AND BLOOM IRON.—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

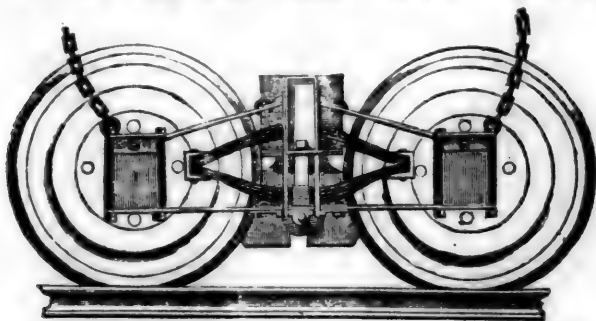
For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,

143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

ber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.  
These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.		LBS.	INCH.	
11	4 1/4	13	5	10	24	-		50	15-16	20
13	3 1/4	8	3	8 1/4	16	-		27	11-16	13 1/4
14	3 1/8	6	11	7 1/4	12	8		17	9-16	10 1/4
15	2 3/4	5	2	6 1/4	9	4		13 1/2	1-2	7 1/4
16	2 1/4	4	3	6	8	8		10 1/4	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay made orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [116] 68 Broad St., New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45 Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

ja45 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 101

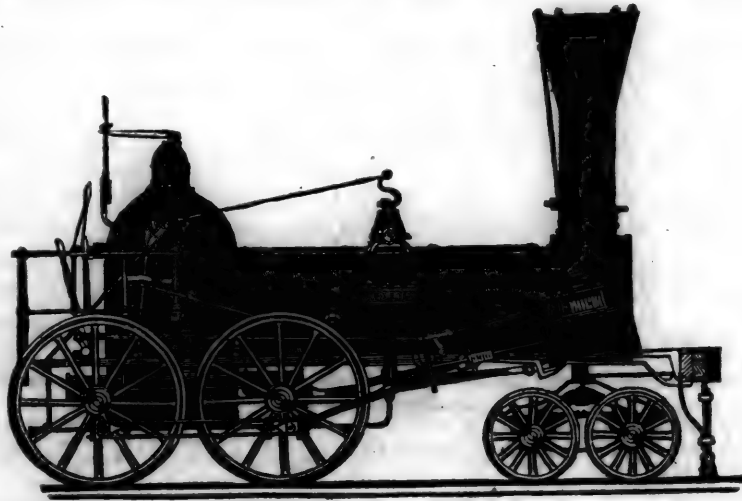
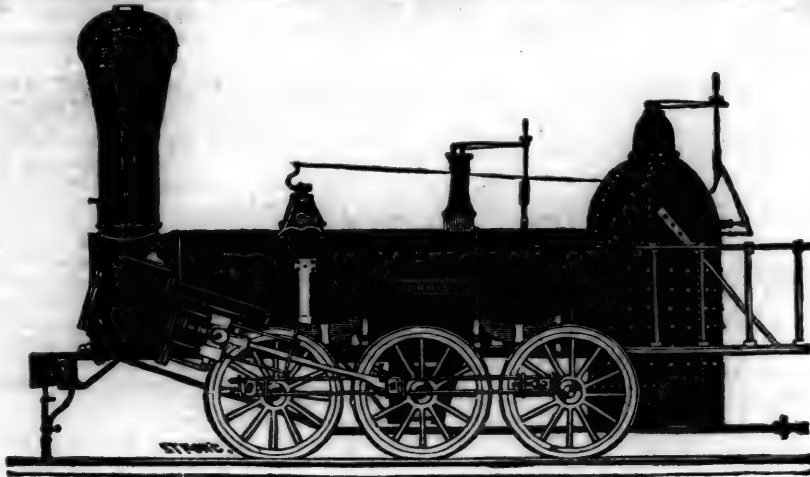
## RAILWAY IRON.—DAVIS, BROOKS

& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 40it



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to **HENRY ANDREWS**, 48 State st., or to **CURTIS, LEAVENS & CO.**, 106 State st., Boston, or to **A. & G. RALSTON & Co.**, Philadelphia. ja45

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS**, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 117

**PATENT INDESTRUCTIBLE WATER**

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28th

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads.** On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON**, Agent.





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	.....\$1 00
" " " Xenia	.....1 50
" " " Springfield	.....2 00
" " " Columbus	.....4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave	
Paterson at	New York at
8 o'clock a.m.	9½ o'clock a.m.
11½ o'clock a.m.	12 1-4 o'clock p.m.
4 o'clock p.m.	5½ o'clock p.m.

On Sunday.

8 o'clock a.m.	9½ o'clock a.m.
4 o'clock p.m.	5½ o'clock p.m.

25th Office 75 Courtland St.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 131y1

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3½ p.m. Arrives at.....9 a.m. and 6½ p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12½ p.m. and 8 p.m. Leaves York for Columbia at.....1½ p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	.....\$1 50
" Wrightsville	.....2 00
" Columbia	.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburgh via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**L EXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35ly

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	.....190 Miles.
Macon to Atlanta—Macon and Western	.....101
Atlanta to Oothcaloga—Western and Atlantic	.....80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	.....0 50	0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....0 20  
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....0 20 pr. 100lbs. 35  
Crockery, per cubic foot.....0 15 " " 35  
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50  
Ploughs, (large), Cultivators, Corn Shellers, and Straw Cutters, each.....1 25 1 50  
Ploughs, (small,) and Wheelbarrows.....0 80 1 05  
Salt, per Liverpool Sack.....0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally	.....50 cts. per hundred.
On measurement goods	.....13 cts. per cubic ft.
On brls. wet (except molasses and oil)	.....\$1 50 per barrel.
On brls. dry (except lime)	.....80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50  
Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. 25 JOHN KING, Jr. Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars	.....\$4 00
Second class cars	.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m. 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25th

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50	and \$3.00
" " Reading, 58		2.25	and 1.90
" " Pottsville, 34		1.40	and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.  
The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 1/2 p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2 p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,  
8tf Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.  
This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Sup't. of Transportation.

Augusta, Ga., July 13, 1847. 44\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 22 1/2	1 54	1 05	0 81	0 86
and Knoxville & intermediate points	0 22 1/2	1 54	1 10	0 76	0 81
and Chattanooga.				0 61	0 76
Between Augusta and Decatur and intermediate points.	\$0 24	1 70	1 15	0 85	0 90
and Knoxville & intermediate points	\$0 24	1 70	1 20	0 80	0 85
and Chattanooga.				0 65	0 80
Between Charleston or Savannah and Decatur and intermediate points.	\$0 32	2 30	1 35	1 05	1 10
and Knoxville & intermediate points.	\$0 32	2 30	1 40	1 00	1 05
and Chattanooga.				0 85	0 90

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Baskets, Tubes, Stuffers, Brooms and other light articles, per 100 lbs.....  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit (in casks or sacks) Pig-iron and Lined seed Oil, per 100 lbs.....  
Cotton. Per 100 lbs.....

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 30
Second class, per 100 lbs.....	1 30
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENNELLY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00



# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III, No. 35

SATURDAY, AUGUST 28, 1847.

[WHOLE No. 584 VOL. XX.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, August 28, 1847.

### Auburn and Rochester Railroad.

We have received the following statement in relation to this road. It is gratifying to know that the company is doing so well—and especially to learn that they are relaying the road with heavy iron.—Such a course will soon be—if it is not already—absolutely necessary, that higher speed and heavier freights may be the order of the day. The time is at hand when a large amount of freight must pass over this road.

Office of the Auburn and Rochester R. R. Co.  
Canandaigua, August 7, 1847.

Sir: Herewith we send you a statement of the receipts and expenses of operating our road for the last six months, by which you will perceive that after paying a semi-annual dividend of 4 per cent. to our stockholders, on the 1st instant, we have over, of the six months' profits, \$52,327 35 to add to our account of surplus profits, making said account now good for \$261,961 20.

We have commenced relaying the road with a heavy iron rail, 60 pounds to the yard. We intend to complete 20 miles this summer, 30 miles next season, and the remaining 38 miles in the summer of 1849. The funds necessary for this object are procured (by the issue of new stock, taken up on the line of the road, and bonds convertible into stock,) within two hundred and fifty thousand dollars of the full amount required to complete the relaying, etc.,

of the entire road, from Auburn to Rochester, 78 miles. This amount of stock we can at any time get taken up in the country, but for the present we shall not dispose of it.

The cost of the road up to the 1st inst., is \$1,880,749 60. When completed with the iron rail, it will have cost, including depots, machine shops, store houses, locomotives, passenger cars, freight cars, etc., two millions and a half of dollars.

Yours respectfully,

HENRY B. GIBSON, President.

CHARLES SEYMOUR, Treasurer.

1847, February 2, surplus.....	\$109,633 94
Receipts in February, 1847.....	13,995 89
" March, ".....	17,601 87
" April, ".....	34,245 80
" May, ".....	39,637 16
" June, ".....	36,842 38
" July, ".....	42,538 16
Mail services for six months.....	5,850 00
	\$300,385 20

1837, August 2, surplus profits.....	\$161,961 29
Expenses in February, 1847.....	\$11,736 50
" March, ".....	12,684 40
" April, ".....	11,915 96
" May, ".....	11,474 43
" June, ".....	10,569 97
" July, ".....	8,855 51
Disbursements by treasurer.....	3,005 04
Emigrant service.....	1,432 10
Interest on State stock to 1st July.....	5,500 00
Interest on bonds to 1st inst.....	5,250 00
Dividend paid 1st August, 1847, say four per cent. for six months.....	56,000 00
Balance to new account.....	161,961 29
	\$300,385 20

### Baltimore and Ohio Railroad Termination.

At a meeting of the Stockholders of this road, on the 25th inst., it was decided to accept of the law of the last Legislature of Virginia, which authorizes its construction through that State, on condition that Wheeling is made the terminus.

The question of terminus has cost this company a great deal of trouble—and a large outlay of capital. They have been for years arrested in their progress, and the business community has been taxed millions of dollars, in time and money, for want of a railroad from Cumberland to the Ohio river.

This delay ought not to have occurred; but the company has been dependant upon foreign legislation—that is, the legislation of States having rival interests—and therefore it has had difficulties, far

greater than the mountains in their path, to overcome. They have at length accepted the only route open to them; and, even if it is not the best that could be found, it is to be hoped that it will be completed at an early day, and that it will be found far better than is anticipated even by its warmest friends.

### Coal Trade.

We have been furnished with the following statement of the coal sent to market by the Schuylkill canal—which we shall publish as furnished weekly.

SCHUYLKILL NAVIGATION.—Week ending August 19th, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	6,144 03
Schuylkill Haven.....	1,222 11
Port Clinton.....	00 00
This week.....	7,366 14
Previously.....	114,591 00
Total.....	121,956 14

### Railway Traffic.

"From our official returns," says the Railway Chronicle of July 24th, "it appears that the amount of traffic for the last week, on upwards of 3,153 miles of railway, was £185,955, thus accounted for: £106,542 for the conveyance of passengers only, £40,264 for the carriage of goods, and a remainder of £39,149 for passengers and goods together, not respectively apportioned; being an increase of 25,165 over the corresponding week of last year, when the mileage was about 2,290."

From this it appears that 864 miles of road have been brought into use during the past year—more than one-fourth part of the railroads in the kingdom from which returns of traffic have been made.

### Extracts from our Foreign Papers.

We have received, by the Cambria, our regular supply of English railway and mining papers, from which we make the following extracts:

**The Iron Trade.**—The price of rails, July 23d, was quoted at £9 per ton. A correspondent of the Mining Journal says that "a good demand continues for Welsh bars, and price is very firm. Scotch pig has fluctuated a little this week, but the transactions have been limited, and holders will not take less than 70s. for mixed Nos. In Swedish iron and steel very little doing since last Mining Journal."

**Glasgow Pig Iron Trade, July 22.**—"Since date of last Mining Journal, a fair amount of business has been done. The fluctuations in price have been frequent, but inconsiderable in extent. Sales of

mixed Nos. have been made at 70s. and 71s.—cash in 14 days. There is less inquiry to-day than for some days past. For mixed Nos. the price may be quoted nominally 70s. cash—free on board."

On the 30th the quotations for rails was the same as on 23d, £9 average, and other kinds "remain without change as to prices, but the demand is not so good as it was about two weeks since; of Swedish iron and steel no recent sales."

**Glasgow Pig Iron Trade, July 29.**—We have had a very quiet week in pig iron; at the end of last week prices receded, and mixed Nos. were sold at 69s., cash; the market has since rallied a little, and sales effected at 69s. 6d.; mixed Nos. have been sold this week at 71s. 6d. to 72s., three months, open delivery. We quote the price of mixed Nos. at 69s. 6d. to 70s.—cash, free on board, buyers at 69s.

**Railway Engineers in Parliament.**—The Railway Record says that "the first railway engineer elected into parliament is Mr. Locke, for Honiton."

"Mr. Booth's suggestion for adopting uniformity of time is likely to be practically realized soon.—The electric telegraph company are now making arrangements to communicate the true time, as observed at the Royal Observatory at Greenwich, to every station on the various lines of railway where the company has a telegraph station, and, of course, to all large towns throughout the kingdom."

**Cost of an Excursion from London to Baden, Brussels, Paris, and back to London.**—We find the following statement in Herapath's Journal of July 31st:

"In the *Bologne Gazette* there is a statement showing the fares for conveying one person, and the charges for luggage in a journey from London to Baden-Baden, and from the latter via Brussels, to Paris, and thence back to London. Miles travelled 1,514; time occupied in travelling, 111½ hours;—fares, £10 10s. 6d.; charge for luggage, £1 7s. 6d.—total, £11 18s. There were from 90 to 96 pounds of luggage carried. No luggage was allowed free on either the Belgian or German lines. On the French Northern luggage of 60 lbs. was, but all in excess charged."

This is less than two pence per mile.

**London and York Railway.**—It is said that 150 miles of this line will be opened for traffic in the next year.

#### Railway Bills Sanctioned by the Queen.

"On Thursday, 23d July," says Herapath, "53 railway bills received the royal assent; these, with the 136 previously sanctioned, make 189 railway bills which have received the royal assent during the session of 1847. The aggregate capital authorized to be raised by those bills amounts to £26,156,735, and the loan to £8,611,011—total £34,767,746. The aggregate number of miles thus authorized to be constructed is 1,415, chiefly consisting of short branches."

#### Railroad from Springfield (O.) to Columbus.

A reconnoissance of so much of this proposed road, says the Springfield Republican, as lies between Springfield and London, was made by an engineer, accompanied by Mr. Forrer, of Dayton, and other gentlemen, during the past week. The route was found very favorable. Passing up the valley of Mill Run about two miles, the route strikes the section line south of Springfield, on a ridge between Beaver Creek valley, and the waters of the Little Miami. This line may be travelled with but a single slight variation on the Darby Plains very little north of London. This route will be surveyed without delay, and an estimate made of the cost of construction.

#### Locomotive Engines and Cars on the Different Railroads in the United States.

In reply to our request in the Journal of 24th ult., we have been furnished with the following tabular statement of the names and length of the railways in the State of New York, together with the number of locomotives and cars employed on them January 1, 1847.

NAMES OF RAILWAYS.	Length of road.	No. of locomotives.	No. of passenger cars.	No. of freight cars.	No. of mail, baggage and other cars.	Total No. of cars.
Mohawk and Hudson.....	*17	6	1	36		37
Ttica and Schenectady.....	*78	15		100		100
Syracuse and Utica.....	*53	9	9	40		49
Auburn and Syracuse.....	*26	4		22		22
Auburn and Rochester.....	*78	10		28		28
Tonawanda.....	43½	6	8	40	8	56
Attica and Buffalo.....	31½	4	6	32	4	42
Buffalo and Niagara Falls.....	22	3	12	4	2	18
Saratoga and Schenectady.....	22	3	4	8	2	14
Schenectady and Troy.....	20½	3	7	40	3	50
Rensselaer and Saratoga.....	25	2	15	11	2	28
Long Island.....	96	15	22	10	24	56
Cayuga and Susquehanna.....	30	1	4	13	2	19
Albany and West Stockbridge.....	38½	none.	none.	none.	none.	none.
Hudson and Berkshire.....	31	4	3	40	2	45
Troy and Greenbush.....	6	3	3	17	2	22
New York and Erie.....	62	9	9	66	60	135
New York and Harlem.....	42	8	42	21	5	68
Lockport and Niagara Falls.....	22	2	8	8	2	18
Lewiston.....	6	none.	6	5	2	13
Skeneateles.....	5	none.	1	1	1	3
* Undivided interest of 5 roads in 70 cars, viz.....			52		18	70
Total.....	754½	107	212	542	139	893

Engineer's Office of Great Western Railway, Hamilton, July 30, 1847.

DEAR SIR: In your Journal of 24th instant, you ask, "How many cars, passenger and freight, are there on the American railways?" Above I send you a statement, which I believe to be correct, of the number of locomotives and cars on all the railways of the State of New York, January 1st, 1847. I hope some one will give those in other States, as it would be interesting to know the whole number.

With respect, yours, etc.

C. B. STUART.

This is precisely what we wanted in relation to the roads in the State of New York—for which we are much indebted to Mr. Stuart, who has so promptly responded to our call, in the midst of his arduous duties as engineer of that important work, the 'Great Western (Canada) Railway.' We shall be equally obliged to other friends who may prepare similar statements in relation to other States, or for individual roads, and we will perform our part of the work by including them in our next edition of the 'Table of Railroads in the United States,' should we be successful in getting returns from roads holding a majority of engines and cars in use.

#### For the American Railroad Journal. The First Locomotive.

I have a small volume, copies of which, though it was published no longer ago than 1813, are now extremely rare. It is entitled "Patent Right Oppression Exposed." The text which is ironical, and in burlesque verse, is probably from the pen of Richard Folwell, the publisher. The notes, which at this day, alone give interest to the work, were evidently prepared by Oliver Evans. A few of these notes I shall proceed to extract.

"The principles on which steamboats and steam wagons may be driven, were discovered by Mr. Evans in 1773. Some years afterwards he applied to the legislature of Pennsylvania, to secure him the right for twenty-five years, in which application he was directed and assisted by his friend, George Latimer, Esq., but they notwithstanding treated his memorial as if they thought him insane. He then applied to the legislature of Maryland, where, through the influence of Jesse Hollingsworth, Esq., then one of its members, he obtained a patent for fourteen years, which, however, was too short a period, or people of wealth were not sufficiently acquainted with the principles, to be interested in making the experiment, and his own circumstances were so straitened as not to admit it."

"In this petition he did not include steamboats, because Ramsey and Fitch were at

that time contending about their originality of invention in the application of such engines as were then known. Besides, he entertained an opinion that the western waters were those only where steamboats would be highly useful."

From this statement, it appears that Mr. Evans discovered in 1773, "the principles on which steamboats and steam wagons may be driven," though it was not till 1786 or 1787 that he made his application to the legislature of Pennsylvania. Seventeen years afterwards, as appears from the following extract, he succeeded in propelling by means of steam a very lumbering vehicle on dry land.

"Mr. Evans constructed for the Board of Health, Philadelphia, 1804, at the corner of Ninth and Market streets, a machine for cleaning docks. It consisted of a heavy flat, with machinery to be wrought by a steam engine, the cylinder of which was only five inches diameter, stroke of piston nineteen inches; the weight of the whole complete was equal to that of two hundred barrels of flour. This he conceived to be a fine opportunity to convince the public that his steam engine would propel both carriages and boats. He at the expense of two hundred and fifty dollars, to try the experiment, made wheels and other temporary machinery, with wooden axles, to apply the power of this little engine, with which he propelled this great weight up Mar-



ket street, and round the circles where the water works are set,\* and onward into the Schuylkill, about a mile and a half."

This, is, I believe, the first instance on record, of a carriage propelled by steam on dry land. If I am wrong, you, Mr. Editor, can set me right. If I am right, let justice be done to the memory of Oliver Evans.

The narrative proceeds as follows:

"He then applied a paddle wheel in a temporary manner, and propelled it (the flat) down the Schuylkill and up the Delaware to the city, a distance of sixteen miles, leaving all the vessels that were under sail at least half way, (the wind being ahead,) in the presence of thousands of spectators, which he supposed would convince them of the practicability of both steam carriages and steam-boats. But in this he was sadly disappointed, for they made no allowance for the disproportion of the engine to its great load, nor for the temporary manner in which the machinery was fixed, nor the great friction, ill form of the boat, and but supposed it was the utmost he could do."

I will give a few extracts from another part of this volume. They are introduced in the original in the form of a prophecy.

"The time will come when people will travel in stages moved by steam engines, from one city to another, almost as fast as birds can fly, fifteen or twenty miles an hour.

"A carriage will set out from Washington in the morning, the passengers will breakfast at Baltimore, dine at Philadelphia, and sup at New York, the same day.

"To accomplish this, two sets of railways will be laid, so nearly level as not to deviate more than two degrees from a horizontal line—made of wood or iron."

When, in the year 1813, these prophecies were uttered, the author must have been regarded by most of his contemporaries as a madman. It is needless to observe how nearly to the letter his prophecies have been fulfilled.

To the Americans, the world is indebted for the first steamboat. It was not the fault of Oliver Evans that the world is not indebted to the Americans for the first railroad also. W. M. G.

Washington City, D. C., Aug. 18, 1847.

We are obliged to the writer of the foregoing communication, for this opportunity of reminding those, who now enjoy the reality of the predictions of Oliver Evans, to whom they are so much indebted as one of the pioneers in the great work of applying steam to navigation, not only on the water, but also on land.

#### Watertown, Rome and Cape Vincent Railroad.

We have not heard much in relation to this railroad for many months past, but the following excellent letter, addressed to a gentleman in Watertown, by a *Bostonian*, in relation to this particular road, and railroads in general, is so truth-like, and applies so well to many other localities, and proposed railroads, that we give it entire.

The road here referred to is designed to open a communication from Cape Vincent on the St. Lawrence, through Watertown, to Rome, there to connect with the line from Buffalo to Albany—and thus

\* The water works here alluded to were at the intersection of Broad and Market streets.

open a communication direct with the "Black river country," Lake Ontario and Canada.

The writer of this letter speaks from personal knowledge on most of the points—and his advice is so good, and so applicable to many other sections, that we should like it much better if we could put the Railroad Journal containing it into the hands of every property holder in the Union.

"The following letter," says the Northern State Journal, "is from a gentleman in Boston, of high standing and long experience in everything relating to the character and influence of railroads on the various interests of New England, and is in answer to one from a gentleman of this place. The public are requested to give it a careful perusal. Its doctrines are sound, the authority is unquestionable, and it relates to a subject of vital interest to this country. Let us one and all arouse from our lethargy, and by one noble effort accomplish this great object. The God of Nature has bestowed his good gifts upon this country with a bountiful hand, and if we are just to ourselves this will soon become one of the most desirable portions of the Union."

DEAR SIR. Your favor of the 3d of August was duly received, and I hasten to answer the various questions it presents.

You ask me to state what connection I have had with railroads. Let me reply that, although a member of the legal profession, I have for the past twelve years been engaged in the direction of steamboats and railroads, and for seven years been closely connected with several of the most important enterprises of the State.

Early in 1840 I was chosen director of the Western railroad, and appointed chairman of the committee which in that year visited Albany, secured the bonds of the city, and planned the extension of the Western railroad to the Hudson. For the four following years I was in the direction of that enterprise, while it struggled through the mountains of Berkshire. Subsequently I have been director of the Fitchburg and Montreal railroad, the first of which is in most successful operation, while the second is expected to be set in motion the present fall. Having taken an active part in conducting these enterprises, owning a country seat between the Fitchburg and Worcester lines, over both of which I pass often in summer, and acting as counsel also in cases of nearly all our lines of railroad, I have enjoyed an opportunity to test the effects of a railroad on the farms and villages of our State.

Although I feel a deep interest in the progress of my native State, and I trust a laudable pride in her rapid advancement, I trust that I do not forget that I am a citizen of the Union, and can permit no State lines to limit my philanthropy, or restrain me from communicating any light I have derived from my position. You ask me if railroads are monopolies. At first our lines were not conducted on the most liberal spirit. Our early directors were timid, and the charges were fixed at four cents per mile for passengers, and eight cents for freight. I have ever been a zealous advocate for low prices, as alike beneficial to the lines and the public. For a long time I wrote and urged the point. I was met at first by incredulous smiles and determined resistance, but argument and ex-

perience at length prevailed. Four years since our rates were reduced nearly one-half, and ever since an increasing prosperity has attended all our lines. Villages are growing up at every station, farms improving and rising in value, and our lines are now conducted in a most accommodative spirit. If monopolies, they are most liberal monopolies, for the tendency of rates is certainly diminished, and the accommodation of the public in speed, cars, depots and frequent trains, is annually increasing. Around the depot at West Newton a large village is growing up, and land has risen from \$50 per acre to prices varying from \$200 to \$1000 per acre. At Fitchburg the population has risen in three years from 3000 to 6000 souls—the effect of the railroad alone. Milk is now carried 45 miles, from Leominster to Boston, and a train of five milk cars attached to the passenger cars, arrives every morning at the Charlestown depot.

Under the influence of railroads, and of manufactures stimulated thereby, the old Bay State has ceased to be an emigrating State. It receives more than it sends forth, and will show by the next census nearly if not quite a million of inhabitants on 700 square miles of rugged land, smiling under the hand of untiring industry, and sparkling with new and beautiful structures.

You ask me to compare railroads with canals. Let me reply that the former are in almost every particular superior. Give me a good and untrammelled line of railroad beside your Erie canal, and its branches, and successful as it now is, I think I would engage to divert its traffic in five years, and leave it without patronage sufficient to keep it in repair. In New York you have as yet enjoyed no perfect lines of railroads. I cannot regard a line with a strap rail, nearly incompetent to carry freight, like that from Buffalo to Albany, as a railroad. Thank heaven we have none of them here. A true railroad is susceptible of a speed of 40 miles per hour, and its capacity reaches to millions of tons and millions of passengers to pass over it annually.

It can live, too, where a canal must perish for want of business. A railroad costing but \$18,000 per mile, can live upon a line which sustains but four daily stages, and ten daily baggage wagons in each direction, and pay large dividends; but a district with this business at ordinary tolls, would not keep a canal in repair.

A railroad surmounts summits inaccessible to a canal. It regards not the drought of summer or the ice of winter. By speed it gives value to produce canals cannot transport, and commands the travel against all competition. It almost annihilates time and space.

In Massachusetts we had three canals.—First the Middlesex, which your commissioners came to examine before they begun the Erie. It paid good dividends, but is now worthless, for it has been completely put down by the Lowell railroad built beside it. Second the Blackstone. A railroad will this fall be opened on its banks, and all or

nearly all of the canal will be abandoned.—Third the Hampshire, from New Haven to Northampton. A railroad is now in progress along its tow path. *We have done with canals.*

You ask me the cost of transportation on railroads. It rises and falls with the quantity conveyed. When business rises to 200,000 tons a year, freight can be transported on a line like yours at a cost of six-tenths of a cent per ton a mile, exclusive of loading and unloading. It has been moved for less.—This charge would include the wear and deterioration of cars, and the repairs of the road.

On the Erie canal the average cost, inclusive of interest on boats and horses, but exclusive of canal repairs and attendance which may be offset, is nine-tenths of a cent per ton a mile, or fifty per cent. more. A line like yours, with 200,000 tons could do a most remunerating business at less than two cents per ton to a mile, but with 30,000 tons only must of course charge more to cover charges and interest on capital, say four cents per ton a mile. Two to two and one-half cents per mile pays well for passengers—better than higher charges.

You ask me if you should raise half the capital for your railroad, if you could borrow the *residue* here. If you move judiciously I think you may. I should begin at Rome and build 47 miles to the lake, as you suggest—thus make the first division productive. I think you could then borrow on 7 per cent. bonds enough to move onward and complete the line; but your lands would not sell until a portion was finished.

The avoidance of the canal toll and the shorter run, if your lake port is accessible, would give you considerable advantage over the Oswego line, perhaps a *dollar* per ton.

At the outset, it seems to me, you must rely upon yourselves, unless you look east towards Ogdensburg, which will soon be within 15 hours of Boston, with a \$7 fare. You must like Hercules put your own shoulder to the wheel. You must rely upon the *country*, not the city, like the *Fitchburg*. You must remember that a railroad, if you build it yourselves, takes *no capital* from the country, except for the *iron*, and that contractors take part of their pay in stock.

At some future day, when further advances are made, I may have the pleasure to visit your flourishing town, examine your noble water power, and investigate further the resources of your country, which well deserves a railroad, and which I believe I appreciate aright. I may then render you more effectual aid.

Meanwhile I remain yours very sincerely.

#### HIGH LEVEL BRIDGE.

On Friday, one of the metal arches for this great undertaking was tested at Messrs. Hawks, Crawshaw & Co.'s works, in the presence of Robert Stephenson, Esq., and several other scientific gentlemen. The arch is constructed on the bowstring principle, and is 125 feet span. The ends will rest upon metal plates fixed in the pier, and a small space

will be left for the alternate expansion and contraction of the arch. The arch consists of four ribs, each 3 feet 9 inches broad, of solid metal. The under roadway is suspended from these ribs by means of rods, which pass down the centre of the pillars—the upper part of these pillars serving at the same time as supports for the upper roadway.—There are also 14 transverse, and 8 longitudinal girders, which bind the whole compactly together—the balustrades are in keeping with the rest of the work. The arch was tested by a weight of 500 tons being put upon it, being double the weight to which it can by any possibility be put by the trains, etc., passing over it; and the result gave the most decided satisfaction to all present. With respect to the other works on the river, and the approaches on each side, all is progressing steadily but slowly. The piers for the southernmost river arch are so far completed, that the foundation stone is expected to be laid during the week. The approaches on the south side are rapidly advancing, most of the pillars for the arches are already erected.—Several of the metal pillars which form the direct approach are also reared at the Gateshead side of the river.—*Newcastle Adv.*

#### CRIMPLE VIADUCT.

This magnificent viaduct, says the Harrogate Herald, will, when completed, form one of the most wonderful of the achievements of science in railway construction in the kingdom. Its massy towering piers are now all reared, and its lofty expansive arches, stretching their wide concavities across deep glen, will shortly be brought to a close. Those of our readers who may be unacquainted with this structure, may feel somewhat interested by a brief description of its situation, and an accurate admeasurement of its gigantic form. Its situation is about a mile to the southeast of Harrogate; it is intended to convey the Harrogate and Church Fenton line of railway across the Crimple valley. The viaduct consists of 31 arches, each of 52 feet span, and the loftiest are 130 feet in height. The piers on which they rest, 32 in number, are about 20 feet each in thickness at the base, and are composed of immense blocks of hard granite. The top of each pier, immediately beneath the springer, is 8 feet, and the quoins 4 feet in thickness. The abutments are thickly flanked, and joined by lofty embankments. The line at the south end is carried through a long deep tunnel: while at the opposite extremity it proceeds along a deep rocky cutting. The whole length of the masonry is about 1856 feet. Between the first and second buttresses at the south end runs the line of the Leeds and Thirsk railway which is carried along the mountain side a considerable distance, and afterwards thrown across the vale by another viaduct, which, however, appears very diminutive, compared with the one described above. The part of the valley over which the monster viaduct is thrown, is a beautiful and romantic little defile between two high rocky mountains, whose steep and rugged sides are covered with a profusion of heath, brushwood,

and other kinds of vegetable life, indigenous to the mountain soil.

#### Pennsylvania the Pioneer in Internal Improvements.

*The Coal and Iron Trade of Pennsylvania in 1847.*

We have been favored with a copy of a pamphlet with the above title, from the pen of C. G. Childs, Esq., the able editor of the Philadelphia Commercial List, which we have read with some care and a deep interest. We have never before read a work of 24 pages that contained as much useful information—and there are few men, if any, who have done, in so small space, as much service to the business community, as the author of this unpretending pamphlet.

It not only claims for Philadelphia, and Pennsylvania, the credit of being the *pioneer* in many important matters, but, what is still better, it shows the claim to be just—especially in relation to the commencement of internal improvements, in the way of turnpike roads, and canals, banks, railroads, iron manufacture, the coal trade, etc., etc., etc.

The best evidence of the high estimation which we place on this production, will be found in the extent of our extracts and quotations from it—by permission, however, it being a copy right work. It should be read by every business man in the community.

The writer says of the "*Coal Trade*:"

The State of Pennsylvania has claims which seem to be imperfectly understood by her sisters of the Union. The reason probably is, that those claims have failed of being properly asserted. In the history of valuable discoveries and of pioneer operations in the great works which are to give character and wealth to our nation, Pennsylvania, and the city of Philadelphia in particular, is entitled to no secondary place. While all due honor is cheerfully accorded to the city of Boston, for the liberality and successful enterprise of her citizens, justice to Philadelphia demands that there should be, in the comparison, a more distinct remembrance of what she has done, than appears generally to prevail.

The great fact that in all works of internal improvement, Pennsylvania has been the pioneer, is one which eminently deserves the consideration of the country. If a wider range of details were taken, it would be interesting to dwell on such facts as these, viz: that the quadrant was here invented by Godfrey—that here Franklin taught men how to control the lightnings of heaven—that on the Delaware, at Philadelphia, John Fitch first proved the power of his rude steamboat, and that it was Fulton, a native of Pennsylvania, who immortalized his name, by maturing that wonderful invention—that the first locomotive was set in motion near the corner of Ninth and Market streets, by its inventor, Oliver Evans, who, with the foresight so often noticed as a characteristic of great discoverers, declared, that the time would come, when one would "breakfast in New York, dine at Philadelphia, and sup at Baltimore."

Here, in 1752, was opened the Pennsylvania hospital, the first public hospital in the United States. The first bank in this country, the bank of North America, was established here in 1780, with Robert Morris at its head: and the first insurance office, under the title of "The Philadelphia Contribution-



ship for insuring houses from loss by fire," had already been established here in 1762. Here, in 1793, was organized the first Sabbath school in the country, by the efforts of Bishop White, Thomas P. Cope, and a few other prominent citizens—an honor now appreciated throughout the Union. The first institution for the blind was that established in this city. The first medical college was opened here. The Academy of Fine Arts, instituted in 1806, was the first of the kind in this country. Philadelphia first showed what might be done in supplying cities with water, by her astonishing Fairmount Water Works. In her Eastern Penitentiary she furnished a model for institutions of that class which has been extensively approved and imitated, both in this country and in Europe. Here too before the revolution, the great discovery which has given us the magnetic telegraph, led Franklin to give signals by electricity across the Schuylkill.

In such a review, it might be added that the merchants of Philadelphia had the patriotism, and the liberality, to build a frigate, (the Philadelphia) and present it to the United States government, the only instance of the kind on record; and the State of Pennsylvania erected a house in Philadelphia, and offered it as a present to Washington. Here also, a stand was taken against the exactions of Great Britain, in advance of Boston herself. The first opposition to the landing of tea was made at a public meeting held in Philadelphia, December, 1773, some weeks before the celebrated tea party executed its work at Boston.

Last, though not least, should be mentioned the fact known throughout the civilized world, that from Philadelphia came forth the DECLARATION OF INDEPENDENCE.

But the part which Pennsylvania has taken in the great works of internal improvement, evidently needs to be better understood. A thorough investigation of this subject would cause surprise in many quarters, and place the character of our city and commonwealth in a most honorable position.

It is to be remembered that the surface of this State presents an obstacle to internal improvements, greater than is found in any other. Vast ranges of mountains are to be scaled, because there are no gorges through which roads can pass. Rapid and turbulent streams, which are frequently swollen by the rains and snows of the mountains, often carry destruction in their course. Yet the mountains have been scaled by our turnpike roads and substantial and costly bridges have been thrown over the thousand streams. In the extent and cost of her turnpikes, Pennsylvania has long been in advance of all her sister States. The turnpike from Philadelphia to Lancaster, was the first undertaken in the Union, and was completed in 1794, at a cost of \$465,000. Subsequently, the whole surface of the State was traversed by these roads. But the day of turnpikes has passed away, and the famous Conestoga wagons, with their noble six horse teams, whose bells sounded along the mountain defiles, and warned the traveller of their approach, are to be reckoned

among the wonders of Pennsylvania, as it was. From 1791 to 1830, there were expended, in making turnpike roads, in this State, upwards of \$8,500,000, in addition to the sum expended by counties.

The bridges of this State have been accounted one of its remarkable features. The Schuylkill "Permanent bridge," erected in 1798, at an expense of \$300,000, was the first great work of the kind attempted in this country. The first Fairmount bridge, with its span of 358½ feet, outrivalling the famous bridge of Shaffhausen, and the wire bridge erected in 1817 at the Falls of the Schuylkill, which served to suggest the idea to European builders, were an honor to Philadelphia. The bridges in the interior, by their number, and their substantial and even bold character, have done honor to the State.

For the introduction of canals, as well as turnpikes, to the public attention, the country is indebted to Pennsylvania. Even William Penn seems to have meditated on the project of connecting the Susquehanna with the Schuylkill; and in 1762, David Rittenhouse and Dr. William Smith surveyed a canal route for the purpose. At that early day, these gentlemen had in view the connecting of the lakes and the Ohio river with the Delaware, by a route of nearly 600 miles! The survey, under the authority of the legislature of Pennsylvania, was accomplished in 1769. In 1791, a company was incorporated for connecting the Susquehanna and Schuylkill, and in 1792, another was incorporated for connecting the Schuylkill with the Delaware by the way of Norristown. At the head of the latter was Robert Morris, the celebrated financier. These two companies undertook the work, and proceeded with it, when, after having expended \$440,000, they were embarrassed, and suspended operations, a number of the leading individuals having become bankrupt in this herculean effort. These beginnings, however, resulted at length in the completion of the Union canal. The first tunnels excavated in the Union, were in Pennsylvania. The first survey for the Chesapeake and Delaware canal was made in 1768, by order of the American Philosophical Society; and as early as 1804, \$100,000 were expended in the execution of the work.

When the period of railroads arrived, Pennsylvania was again the pioneer. The railroad at Mauch Chunk, constructed with Philadelphia capital, was the first in the Union; or, at least, was anticipated only by a short tram road at Quincy, Mass. From that period to the present, Philadelphia has been second to no city in the Union, in expenditures for constructing these wonderful annihilators of time and space.

The Coal Trade of Pennsylvania is attracting more and more, the attention of the country. No thinking person can contemplate its progress without being deeply impressed with the importance to our Union, of the State in which such vast resources of fuel are found. Were Pennsylvania annihilated, with all her mountains of coal and iron, how melancholy would be the condition of her surviving con-

federates, in regard to these two grand requisites of civilized life.

If the importance of the coal trade is inconceivably great, its progress has been astonishing. Anthracite coal was first used as fuel (on tide water) in 1820, and the total supply then sent to market was 365 tons!—a quantity smaller than that now annually consumed by hundreds of single establishments. We now find a single iron manufacturing company in our State consuming 60,000 tons of anthracite, and 100,000 bushels of bituminous coals annually.

From being regarded a doubtful article of combustion at all, anthracite coal has come to be largely used for domestic purposes, for the production of steam in manufacturing establishments, for propelling steamboats and railroad locomotives, and more recently for the manufacture of iron, for which purpose it is employed on an immense scale. In 1840, there were no anthracite furnaces in full and successful operation. There are now 40 furnaces in blast, many of them of the largest class. Within the last three years 18 rolling mills have been erected, which consume hundreds of thousands of tons of coal annually. This branch of business, so important too in a nation view, is destined to increase rapidly, as the demand for railroad iron increases in almost every section of our country. It is only by collecting details and uniting them, that the extent and importance of the coal trade is made apparent. It has already more than trebled the coasting trade of Philadelphia, and pays, annually, a freight on the shipments coastwise from this port, of more than a million of dollars. If this trade is of such importance in this period of its infancy, what will it be in its full growth?

About the year 1837, a report was made to the government by Major BACHE, of the Topographical Engineers, on the subject of an artificial harbor or breakwater, at Cape May, in which he states that the *insurable interest created by the coal trade passing around Cape May alone, already amounts to more than twenty two millions of dollars per annum*, estimating merely the vessels in ballast coming after it, and the value of the vessel and cargo carrying it to the various ports at which it is wanted. Many of these vessels bring us supplies from the ports they come from, at merely a nominal freight, instead of ballast, plaster, fish, lumber, salt, and other articles required for consumption in the interior, which add materially to the resources of the canals and railroads.

In England, coal appears to have been first used as fuel, about the close of the 12th century. In 1339, Henry III. granted a charter to the burgesses, of Newcastle, to dig for coal; which is the first legal mention of the article on record. As early as 1140, we find among the Leges Burgorum, an enactment giving special privileges to the inbringers of fuel, which is described as being "wood, turves and peats." The English coal trade, which now amounts to forty millions of tons annually, may indicate to us something of what we have reason to predict in our future career.

Perhaps few persons have distinctly considered the aggregate expenditure in the improvements designed to facilitate the transportation of coal from our vast coal fields.—Let us look at some definite statistical account of these operations.

NAMES AND COST OF THE CANALS AND RAILROADS LEADING TO THE COAL MINES.

LEHIGH COAL REGION.	Canals length.	Railroad length.	Cost.
The Lehigh Navigation—Extends from Easton to White Haven, 71 miles, and thence to Stoddartsville, 16 miles—there is an improved navigation.....	87		\$4,555,000
Whitehaven and Wilkesbarre railroad—From Whitehaven to Wilkesbarre with three inclined planes and one tunnel.....	20		1,350,000
Mauch Chunk railroad—From Summit & Room Run mines to Mauch Chunk and back tracks.....	36		600,000
Beaver Meadow Road—From the Beaver Meadows to the landing on the Lehigh canal.....	26		360,000
Hazleton Railroad—To Lehigh canal.....	10		190,000
Buck Mountain Railroad—To Lehigh canal.....	4		40,000
Summit Railroad.....	2		20,000
Total Lehigh Improvements.....	87	98	7,945,000

SCHUYLKILL REGION.

The Schuylkill Navigation—Commences at Philadelphia, and terminates at Port Carbon, (including cost for enlarging to this time.....)	108		\$5,675,000
The Reading Road—Extends from Richmond to Mt. Carbon, with a branch from the Falls of Schuylkill to the Columbia railroad at Peters Island, including cost of locomotives, cars, etc.....	93		11,000,000
Little Schuylkill Railroad—Between Port Clinton and Tamagna, cost \$240,000, and new rails now laying, \$220,000.....	20		500,000
Mine Hill and Schuylkill Haven Railroad—Cost \$430,000—new rails, and 7½ miles extension to Swatara, \$120,000.....	25		550,000
Danville and Pottsville Railroad—Unfinished, and only part in use.....	29½		680,000
Mount Carbon Railroad.....	7		155,000
Mount Carbon and Port Carbon Railroad.....	2½		190,000
Schuylkill Valley Railroad.....	14		300,000
Mill Creek Railroad.....	6		120,000
Railroads constructed by individuals, aggregate.....	70		180,000
Railroads under ground in the mines.....	60		75,000
Total Schuylkill.....	408	357	19,365,000

OTHER PLACES.

Lykens Valley Railroad—To Susquehanna canal.....	16		200,000
Wisconsin Canal—To Millersburg on Susquehanna.....	12		70,000
Swatara Railroad—To Union Canal.....	4		20,000
Lorberry Railroad.....	4		20,000
Total other places.....	12	24	310,000

RECAPITULATION.

Lehigh Improvements.....	87	98	7,045,000
Schuylkill.....	108	240	19,365,000
Other places.....	12	24	310,000
Total.....	207	419	26,720,000

To these must be added the Delaware and Hudson canal, 108 miles long, and railroad 24 miles, cost.....	\$3,350,000
Morris canal, 102 miles long, constructed to carry coal to New York, cost.....	4,000,000
Total as above.....	26,720,000
Grand total.....	\$34,970,000
Total length of canals, 417 miles.	
Total railroads.....	473 miles.

The coal trade gives employment to a very great number of persons. Indeed, nearly all the cost of the article is the result of labor. In its locality it is worth only from 25 to 50 cents per ton; averaging 35 cents per ton.—But in all the operations connected with mining and transportation, a vast amount of labor is employed. We must take into account not only the miners, and the boatmen and brakemen on the canals and railroads, and the hands on board the transporting vessels, and the carmen at the places of delivery, but also the thousands employed at some time, in making the necessary railroads and canals, the locomotives and stationary engines, the boats, etc., etc.

The sums thus invested in providing avenues for the coal trade may be computed;—but the enhanced value of lands, and the property which appears in smiling villages where once roamed the panther and the bear, baffle all our attempts at calculation.

These exhibitions of the extent of the coal trade, and its importance to the Union, lead us to ask whether this interest has not a very strong claim upon the government for protection and encouragement. If not, how could such a claim be conceived of as possible?—What operations can be more intimately connected with the prime elements of national growth and power? What political wisdom can discern the propriety of withholding the protecting power of the government here, unless it be that which denies, altogether, the justice and policy of any restrictions on the disheartened competition of other nations, which is fitted to keep back our own enterprise for centuries?

The proximity of the Nova Scotia mines to the New England States—the immense capital of the British Mining Association—(the present holders of the original grant to the Duke of York) and the facilities they possess for bringing their coal into this country, to the destruction of our own industry, seem to require some legislative enactment in behalf of this important trade.

IMPORTS OF FOREIGN COAL.

The following table shows the imports of foreign coal into the United States, from 1820 to 1846, inclusive:

1821.....	23,129	1834.....	71,626
1822.....	34,523	1835.....	49,969
1823.....	30,433	1836.....	108,432
1824.....	7,228	1837.....	153,450
1825.....	35,645	1838.....	129,083
1826.....	35,665	1839.....	181,551
1827.....	40,257	1840.....	162,867
1828.....	32,302	1841.....	155,394
1829.....	45,393	1842.....	141,526
1830.....	58,136	1843.....	41,163
1831.....	36,509	1844.....	87,073
1832.....	72,978	1845.....	85,771
1833.....	92,432	1846.....	156,853

As early as July, 1789, and soon after the

adoption of the federal constitution, a law was passed laying a duty of two cents per bushel on imported coal. (See pub. doc. page 72.) August 10th, 1790, the duty was increased three cents per bushel. Again on the 2d of May, 1792, the duty was increased to 4½, and on the 7th of June, 1794, to 5 cents per bushel. This duty was continued under all the party changes, until April 27th, 1816, when the duty was changed to 5 cents per heaped bushel. In 1824, May 26th, after our coal had begun to be used, the duty on imported coal was increased to 6 cents per bushel, or \$1 50 per ton. Gen. Jackson, then a member of congress, voting in favor of this duty. In 1842, the duty on imported coal was raised to \$1 75 per ton; but even with this check to its importation, some supplies were brought in, as will be seen by a subsequent statement taken from official documents. By the present tariff, the duty is only about 45 cents per ton on board, and may be reduced to 35 cents.

It thus appears that Washington, Madison, Monroe, Adams and Jackson gave their high sanction to the protection of the coal interest—an interest of the importance of which even those tar reaching minds must have formed a very inadequate idea. Of the use of coal in the production of steam, it is not easy to any what suppositions and expectations it would be safe to pronounce extravagant. In an address lately delivered, Mr. Pierpont indulged in the following illustration:

“It required twenty thousand men twenty years to build one of the pyramids of Egypt. The same number of men might, by the aid of steam, accomplish as much work now in twenty-four hours. Cylindrical boilers are the seven league boots of the country.”

In reference to the use of coal in the manufacture and working of iron, it is pertinent to quote the remarkable language of Mr. Lock, in his Essay on the Understanding, where he says—“Were the use of iron lost among us, we should, in a few ages, be unavoidably reduced to the wants and ignorance of the ancient savage Americans.” And, whether we can fully subscribe to this sentiment or not, we cannot object to the beautiful declaration of the same philosopher, that he who first made use of iron, “may be truly styled the father of arts and the author of plenty.”

Our large table shows the comparative quantity of anthracite coal sent to market from the different coal regions in Pennsylvania, from the commencement of the trade in 1820, to the close of the past year. Nearly all the above returns are official, being obtained by us from the different regions. It will be seen they vary in several cases from the reports of the Miners' Journal, the only paper beside our own that has pretended to keep up original yearly statements of this important trade.

Anthracite coal was first used as fuel (on tide water,) in this country in 1820, when the total supply sent to market was only 365 tons. If we divide the 27 years that have elapsed since coal was first used, into three



periods of nine years each, it will be seen that the total supply from all the mines in the first period, ending with the close of 1828, was 239,845 tons.

Second period ending 1837, 3,829,829 "

Third period ending 1846, 11,549,061 "

Showing the annual average receipts for the first nine years to have been 26,648 tons.

Second period, 454,534 "

Third period, 1,283,229 "

From which it appears that the quantity consumed during the last nine years was nearly three times as large as during the preceding eighteen years.

To be continued.

#### PROGRESS OF THE RAILWAY SYSTEM IN ENGLAND.

Herapath, in his Journal of 17th July, says that "Our last paper (p. 777) will have announced to parties interested in railways, that up to yesterday week, July 9th, 136 railway bills received the royal assent, authorizing the construction of 1,141 miles of railway, and requiring a capital, including iron, of about £26,000,000.

But there were presented in this session of parliament 320 bills; and, up to yesterday week, only about 60 of them have been withdrawn or otherwise thrown out; leaving 260. Consequently, deducting from these 260 the 136 which have already received the royal assent, and we have 124 bills still before parliament, many of which are in an advanced stage towards completion. It is probable that the majority of the 124 will be passed. It all, or nearly all, be passed, we shall then have another batch brought into existence about equal to the lot which have just been fully sanctioned—say about £24,000,000 more, making (with the £26,000,000) the sum of £50,000,000 for railways passed in this session.

If we take the cost of the railways established prior to 1844, as £80,000,000, we shall not be wide of the mark. Then, in the session of 1844, there were sanctioned railways to the extent of—(in all cases including loans as part of capital)—£16,000,000. In 1845, as much as £58,000,000 worth were passed. In last session, 1846, there were about £120,000,000 sanctioned. Adding to these totals, £26,000,000 for the lines just sanctioned, and we find the total capital for railways made, being made, and authorized to be made, amounts to £300,000,000. To this we might also add the £24,000,000, which we expect will be further sanctioned before the close of the present session, making £320,000,000. But we have certainly, within a fraction, £300,000,000, as the capital of the old and authorized new lines.

Of this £300,000,000, by far the major part has to be called up for the construction of the new lines. Only £80,000,000 of it are for old lines. Say that £30,000,000 have already been paid on calls, on account of the new lines. There will, therefore, be £110,000,000 to be taken from £300,000,000, leaving £190,000,000 yet to be subscribed for the new lines. If there should be £24,000,000 more sanctioned in this session, there will be £240,000,000 to be paid up by the public. Per-

haps we may set down in round numbers—not by any means being desirous to exaggerate—£200,000,000, as the amount of future calls.

This result is certainly serious, and demands the deepest attention of all engaged, or interested in railways. With good management, the enormity of such a liability might be rendered indestructive; prudence might even turn it to good account. But if directors go recklessly to work, we cannot answer for the consequences.

If shareholders subscribe £50,000,000 a year in calls, there must be four years consumed in constantly paying up, at this rate, before they (the shareholders or the public) will be released from their liabilities. But it is to be hoped that such arrangements will be made, principally by the present abandonment of a host of almost useless branches, which some of the railway companies have, in their wisdom, armed themselves with power to make, that the payment of the two hundred millions will be spread over a period of more than four years, and thus reduce the subscription in calls to something less than fifty millions a year, or about a million a week.

The sample of management, however, which we now have before us in the table of calls, compiled for us by our correspondent, 'Frank Marvel,' is not at all encouraging. 'Frank Marvel' shows that the amount of calls for this month (July) is £5,227,725;—or more than a million and a quarter per week.!!!

We may observe, passingly, that the table which our correspondent furnishes is as accurate as great labor and unusual means for obtaining such information can make it; and if there is any error, it is that of omission—the real amount must be larger, not less than £5,227,725.

We have no wish to frighten or alarm shareholders, but we really think the above facts demand that they should pay a little more attention to their affairs than it is the fashion to do.

The proverb is, 'It seldom rains but it pours.' Unfortunately at this moment France is in want of a loan of £12,000,000.

By far the larger portion of the £200,000,000 is for branch lines, projected by the established companies. Most of them, we will be bound to say, are next to useless, and will only tend to dilute the profits of companies which are now paying good dividends.—Shareholders have it, therefore, in their own hands, to prevent the enormous expenditure for such lines. They can come to resolutions requiring their directors to suspend the construction of them, by which they will not only save themselves from the ruinous engagements of having to pay calls for years to come at the rate of more than a million a week, but will prevent the threatened reduction of their present dividends.

We have long urged upon railway direc-

\* Since writing the above, 'Frank Marvel' has sent us some corrections or additions to the table of calls, rendering the amount for this month £5,332,725.

tors and shareholders the folly of that wholesale creation of branches and amalgamation, and leases which bid fair to reduce dividends to little, and something beautifully less. Our warning voice has been disregarded. A spirit but little better than madness has been abroad. Line after line has been created—branch after branch has been projected, and boards, instead of being checked, have had all their propositions received with clapping of hands and shuffling of feet, as if they were conferring some everlasting good, instead of tagging to the concerns schemes which must inevitably reduce their value and their dividends. It is now reported that one of our great lines will drop its dividend a half per cent. for the half year at the next meeting. Unless the pruning knife be vigorously applied to the superfluous branches, we shall not at all be surprised to see some of our 10 per cent. lines gradually drop to five and others to less. Shareholders run away with the notion that they can have the premiums and dividends too. They cannot or will not understand, that every addition paying less than 10 per cent. or less than the parent line, must necessarily reduce their annual income. No, a line paying 10 per cent., they imagine will, by a sort of magic, make everything added to it pay the same dividend, and, therefore, will not reduce the dividend of the old line. A very few years, we expect, will teach them better, and open their eyes to the improvidence they have committed in their unrestrained creation of capital.

Many of the branches and extensions, we admit, are not of the several companies seeking, but are forced upon them by circumstances. A restless neighbor thrusts out a branch into their dominions, and to save themselves, they are obliged to project another, or perhaps two, without any regard to cost or returns. As, however, it will not do to tell the shareholders this, the projectors of these branches so contrive to mystify the case with figures and assurance, as to make the barren projects appear to be excellent acquisitions. A high premium, or one proportional to that of the parent company is asked and obtained for the new shares, and the fortunate sellers go their way rejoicing, not dreaming that the very premium, if not more, which they have pocketed for the branch, must, ere long, be taken out of the share price of the old line.

In the majority of cases, however, these branches are not even forced upon the companies by external circumstances, but are the creations of the engineers or solicitors of the companies, or perhaps of both together, or are the creations of a designing, unscrupulous man of influence in the company, who has some interest to serve. Cases have not been wanting where land or an estate has been bought first, and a branch or an extension projected afterwards. There was one instance in which land of the value of £300 was charged to the company by one of the directors, and paid for at £30,000. Nor is this a solitary instance; others equally as flagrant can be adduced; but we hope and believe they are not very common occurrences. Branches, though not unfrequently the crea-

tures of boards, are more generally the offspring of cupidity in certain officials. But come from whatever source they may, the shareholder will do well to have none, or as few as possible of them made. The large amount of capital to be called up, for really necessary schemes, will be sufficient to tighten, if not cripple, the money market, and consequently to depreciate very materially the price of railway stock, without the burden of unprofitable and useless branches. But the new creations in the present year, consist almost entirely of branches and needless extensions. Shareholders, therefore, should insist on their postponement. If they do not, they must expect, ere another year pass over their head, to see their most valuable property reduced some 50 per cent.

We give these remarks entire, as they reprove, with great freedom, the present doubtful policy—in the estimation of many—of numerous branches to the principal main lines of railroad in England.—We like the freedom with which the editor of this Journal often comments upon the policy of some of the companies.

#### CRAMPTON'S LOCOMOTIVES.

The London Morning Herald of July 22d says that "the 8-foot driving wheel engine, (Crampton's) on the working of which great expectations were formed by the narrow gauge party, and the details of a very good performance of which we gave a short time since, has been singularly unfortunate upon the London and North Western line. Although admirably balanced upon her wheels, and of excellent workmanship, hot axles have been a common occurrence with this engine. She got her buffer beam broken, and her axle boxes injured, by most culpable negligence on the part of a driver of a pilot engine.—She was sent with instructions, for slight repairs, into the shed, where she remained much too long a period, considering the important influence her working was likely to have on the question of the gauges. Again, if we are not mistaken, we have ourselves seen several different men driving and stoking the engine in the few trips that she has taken. This change of men is certainly most injudicious with a locomotive having a fire box of a novel construction, and difficult to feed.—Practical people know that the best mode of firing and working such an engine is not to be ascertained either the first or second trip. The engine took a couple of trips yesterday, on the London and North Western line, with ordinary trains, prior to her being taken into the shed to be thoroughly inspected. We rode down the line with her, and, although we think her fire box defective, an evil which can be remedied, we are confirmed in the soundness of the favorable opinion we formerly expressed of her. The fire box when well fed does not afford her all the steam necessary for high velocities with heavy loads. It was pointed out at the time that the remedy was to be found in excellent bearings;—and we learn that in the new engines of this class that have been ordered by various companies, the patentee is adding three feet to the present 14 feet bearings. This addition will enable him to make his fire box of the old

shape. Any stoker will then be able to feed it, and we have no doubt that Mr. Crampton will, with such an alteration, be able to show a very important improvement in the speed and power of narrow gauge passenger engines.

#### ELECTRICITY AS APPLIED TO THE SMELTING OF ORES.

We are given to understand, upon undoubted authority, that arrangements have been entered into for the purpose of fully testing the process lately patented by Mr. A. Wall, for refining and smelting ores by electricity, and that Dartmoor is to be the scene of operations—the Dartmoor Consols Mining Company having, for a limited period, placed the smelting house, situate on their mine, at the disposal of the patentee. We have already made mention of this highly important discovery in a former number, and we congratulate the mining interest on the principle being so near development; and should the result of the experiment be favorable, which we predict it will be, there can be no doubt it will give an impetus to the trade, and a new era will be arrived at in the art of smelting.

We understand the experiments hitherto made, have been on the harder metals—such as iron and steel—and which have been highly satisfactory. The object of the present experiments at Dartmoor is, to prove the great superiority of the electric process on the more ductile metals—such as tin, copper, lead, etc. We cannot, therefore, speak too highly of the liberality of the directors of the Dartmoor Consols Mine, in thus enabling the patentee to show the results in the very heart of the mining district, where these metals are chiefly produced, and which, we understand, he confidently anticipates will be yet more favorable than on the harder metals. Hitherto smelting the ores, raised in the two counties of Devon and Cornwall, has been a trade of itself—the ores being sold at or near the mine and taken to Wales to be smelted; and this business being in the hands of a few very rich individuals, there is not that fair competition that there should be in a trade of such vast magnitude.

To obviate this great evil, which weighs heavily upon those who have a vested interest in mines, as well as on the miner who extracts the ore, has been the anxious desire of many patriotic individuals; but the monopoly has taken too deep a root to be easily removed, and, we lament to say, it still exists in full vigor. By the new process, smelting will be carried on at a much less cost; and we confidently anticipate that furnaces will be erected in localities where the ores are produced, and smelted on the spot, instead of being conveyed at a considerable charge for carriage, freight, etc., as now practised—thus enabling the industrious miner, and the capitalists who invest in mines, to divide a handsome profit, which is now swallowed up by the monopolist; and many mines that are worked at a loss, will return dividends to the shareholders. We hear that a large offer has been made to the patentee by a private capitalist, for the exclusive right of using his patent in the two counties of Devon and Corn-

wall; but he rejected the offer, preferring to allow those locally interested to share the benefits to be derived from his discoveries.—*London Mining Journal.*

#### BARON VON RATHEN'S COMPRESSED AIR LOCOMOTIVE.

In our Journal of the 12th June, we made mention of some experiments which we had the pleasure of witnessing at the College for Civil Engineers, at Putney; which had for their object to test the practicability of Baron Von Rathen's new plan (patented, but still unspecified) of working locomotives by compressed air. We stated that we had seen on that occasion air compressed to upwards of 850 pounds per square inch, and this enormous power was set free again with the greatest facility for locomotive purposes—that is to say, not all applied at once, but "set free" or let off, as wanted, in quantities proportionate to the work performed. We noticed, further, that there was a common road locomotive in the course of building at the work shops of the college, which was intended to be worked on this plan. Since then some additional experiments have been exhibited by Baron Von Rathen; for the following particulars of which we are indebted to an eye witness:

On the 8th inst., the compressed air reservoir was again charged to upwards of 600 pounds per square inch, in the presence of a number of gentlemen, who have associated to make trial of Baron Von Rathen's system; and if that trial prove successful, of which there now seems every probability, to promote its general adoption, both on railways and common roads; and, in order to show the perfect control under which this prodigious force is kept, and the ease with which it may be applied, in more or less abundance, the air was allowed to escape from the reservoir, at intervals, regulated solely by the pleasure of the persons superintending the experiment. The noise made by these successive escapes of air, was like that of a battery of cannon. Another point which remained to be practically demonstrated, was the length of time which the reservoir was capable of retaining a body of air under so high a state of compression; and in that respect also the result was in the highest degree satisfactory. Four days after the experiment just described the reservoir was again tried in the presence of the Duke of Buccleugh, the enlightened and public spirited patron of the college, and several other noblemen and gentlemen—being still in the same state in which it was left on the 8th inst., and reduced only in its original force by the amount of air discharged from it on that occasion. The working power of the apparatus was now found to be for all practical purposes, in as high a state of perfection as ever—the air issuing with apparently undiminished elasticity from its state of confinement, and with a noise that could only be likened, as before, to that of heavy artillery. Of no other motive power yet invented, can it be said that it is capable, like this, of being stored up in any quantity, not only till the occasion arrives for its use, but in a state always fit for instant use; stored up, moreover, in vessels which may be either



stationary, or carried about from place to place. Of no other known power either can it be said with so much truth, that it is unlimited in its source, and free from everything like nuisance in its application.—*Mech. Magazine.*

From the London Mining Journal.

THE AMERICAN STEAMER "WASHINGTON."

*Kymer and Leighton's Fire Bars.*

SIR: I have just read in the Mining Journal of 17th July, a short account of the return of the American steam ship Washington to Southampton, after destroying two sets of fire bars, which you state "a committee of the passengers attributed to the bad quality of the coals—a species of anthracite much resembling the American." I beg to make a short comment upon this. The destruction of the grate bars was owing to the superior quality and strength of Welsh anthracite coal over the American; the latter contains a very large proportion of ash, or earthy matter, which protects the grate bars from the joint action of carbon and the blast. There is but one vein, or seam, of anthracite in Wales which can be used with a blast and common grate bars; this contains about 20 per cent. of ash—that is, earthy impurity. The generality of Welsh anthracite will not average more than four per cent. I enclose you a circular, consisting, for the most part, of extracts from your valuable Journal, in which you will find the analysis of some coal containing only 1.18 of impurity in 100 parts. With such coal as this, I have run a set of bars together in less than two hours; this was owing to the strength of the fuel, not to any inferiority in quality. In order that such fuel as this might be applied to steam navigation, by the use of a fan blast, I contrived a grate having a trough of water under each fire bar. As I have so repeatedly brought this matter before your readers, I refrain from further comment, than merely to state my decided opinion with respect to the Washington steamer. I know nothing of her qualities as a sea boat, but, *ceteris paribus*, referring merely to the generation of steam. Had the Washington gone to sea, fitted with Kymer and Leighton's grate, using the Garnat pig vein coal (some of which I believe was shipped at Llanelli for her use) and an ample blast, no steamer on the ocean would have kept up with her. Although wearied out, and disgusted by the neglect and apathy with which the anthracite coal owners have always treated this plan, I cannot resist the impulse of placing the merits of the case in a true light. T. H. LEIGHTON.

Llandeib, near Llandilo, July 18.

From the London Mining Journal.

IMPROVEMENT IN SIGNALS FOR RAILWAYS.

SIR: Shortly after the very serious accident at Wolverton, on the London and North Western railway, my attention was directed to the principle of signaling generally adopted on railways—the use of different colored flags by day, and different colored lights or lamps by night. This principle, so far as I know, has in general wrought well, and might for some time at least have retained

the confidence of railway proprietors and the public, but for the Wolverton accident, which, in my opinion, may be traced to this very objectionable mode of signaling. It is a well known fact, that many individuals have not the power of distinguishing colors at all; and that, where this defect of vision does not exist, any sudden transition of the eye from one color to another, occasions confusion and indistinctness in determining the color presented to the eye. If these statements are correct, then I think that the confusion and consequent fatal blunder of Fossy are easily accounted for; or should the memory fail for an instant in its power of associating a certain colored light with a particular train, there is nothing tangible left to resort to for its correction. The approaching train leaving but little time for reflection, necessitates a movement of some kind on the part of the watchman, which movement has too often been of a wrong kind, although not always attended with such serious results as the case referred to. What I would suggest is, that each lamp used as a signal, should take the form of a letter, which letter should be significant of the character of the train to which it is attached—for instance, a lamp in the form of a P should be placed on a passenger train, and one of the form of an L for a luggage train, and so on in respect to the other descriptions of trains. The same principle I recommend to be adopted for the signal lights at the different stations. It would then be immaterial what color of light is used, as the recognition of a letter, either on the train, or on the signal posts of the stations would determine the movements of the different parties immediately concerned in the management of the trains. This principle, if adopted, would at once relieve the minds of all connected with the movements of the trains from all embarrassment, arising from defective memory, or disordered vision, as the appearance of a letter, the initial of the thing signified, would be at once tangible to the most obtuse understanding, and give scope for a greater variety of signals than the present system can admit of.

ROBERT BOWMAN.

Co. James' Square, Wolverhampton, }  
July 26, 1847. }

*Fall of Another Bridge.*—On the evening of Thursday last, the bridge in the course of erection over the Tweed at Ashysteel, fell with a tremendous crash into the water. The ruins of it now lie like a vast dam across the Tweed, with only a narrow outlet in the middle, through which the water passes. The whole wooden framework supporting the arch was literally smashed to pieces. No individual saw the bridge fall, the workmen having all left a short time before. Mr. J. Smith, one of the architects, had just examined it, and seen nothing wrong. The cause of the accident is not properly ascertained.—The arch, which was 135 feet span, and constructed entirely of whinstone, was a double one; both arches were finished, and they were putting on the balancing. Some attributed the accident to the haunches or outer ends being overloaded, but this is mere con-

jecture. We understand Messrs Smith have commenced active operations to have it rebuilt this season on the same gigantic scale as at first.—*Border Watch.*

*A Modern Miracle.*—A rope, nearly three miles long, now lies on the verge of the borough of Gateshead, which was the other day a stone in the bowels of the earth! melted, the stone yielded iron. The iron was converted into wire. The wire was brought to the wire rope manufactory of R. S. Newall & Co., at the Teams near Gateshead, and there twisted into a line 4660 yards long. It is, we believe the stoutest rope of the kind that was ever made. It weighs 20 tons 5 cwt. and will cost the purchasers upwards of £1,134. It is intended for the incline on the Edinburgh and Glasgow railway, near the latter city. A rope of hemp, of equal strength, would weigh 32½ tons, and cost about £300 more. It would also entail greater expense while in operation, (owing to its greater weight) and sooner wear out.—*Gateshead Observer.*

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.** Proposals will be received at this office, and at the office of the Resident Engineer, in Gardiner, until the 21st of August, for the Grading and Masonry of 21 miles of this road, extending from Bowdoinham to Augusta.

The line of road and the plans and profiles will be ready for examination on the 12th of August, after which time any information in relation to the work can be had at the engineer's office in Brunswick and Gardiner, or of the resident engineer on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to complete the work.

The remainder of the line from North Yarmouth to the depot of the Portland, Saco and Portsmouth Railroad in Portland, 15 miles, will be ready for contract on the 18th of September, of which due notice will be given. GEORGE S. GREENE,

Engineer K. & P. R. R.

ENGINEER'S OFFICE, K. & P. R. R }  
Brunswick, July 12, 1847. }

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**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

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**LOCOMOTIVE AND CAR AXLES.**

The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Blown Iron only*. Address

SAM'L KIMBER & CO.,

Willow Street Wharf,

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4tf

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

New York.

1y10

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 106 Chestnut street.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise.] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 12 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 3500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

19 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

281f

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:  
180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.  
25 " 2 1/2 x 1/4 " Flange Iron Rails.

75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

11f

**THE SUBSCRIBERS ARE PREPARED TO**  
execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

261f

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Vrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1v

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on

an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

**FRENCH & BAIRD.**  
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Ewing, Philadelphia; Wm. E. Coffin & Co. Boston.

ja45

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

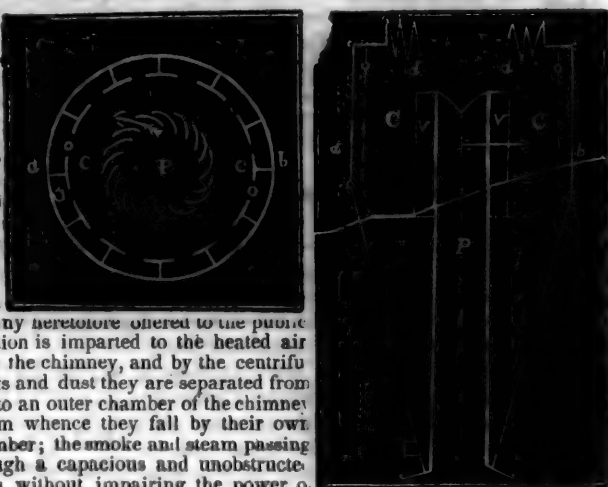
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

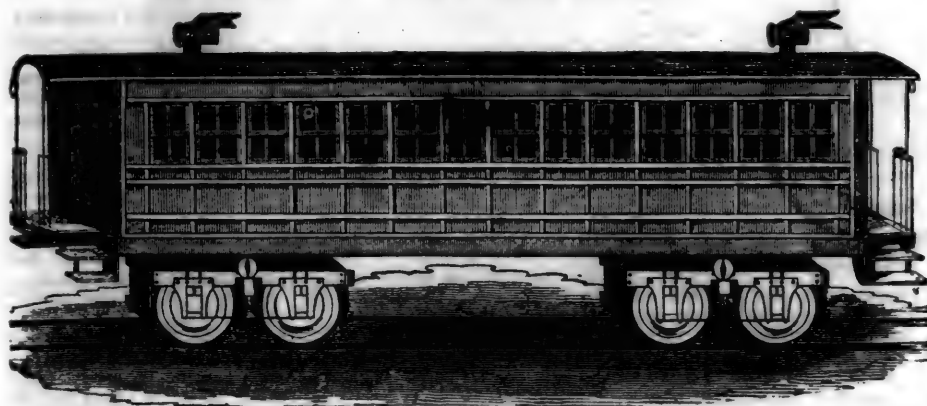
ROGERS, KETCHUM & GROSVENOR,  
Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

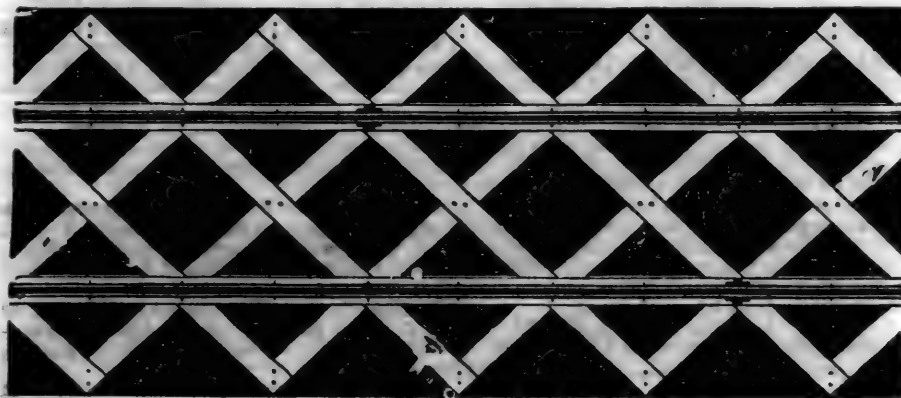


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10c

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

## LAP-WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\*

Maryland.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

ANDREW MENEELY.

West Troy, May 13, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

124f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

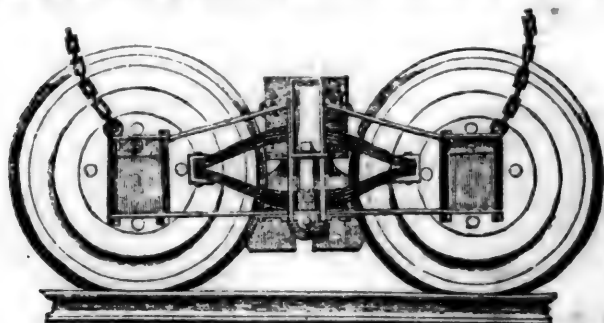
For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,

143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 321f

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

# ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ropes; or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -	50	15-16		20
13	3½	9 3	8½	16 -	27	11-16		13½
14	3½	6 11	7½	12 8	17	9-16		10½
15	2½	5 2	6½	9 4	13½	1-2		7½
16	2½	4 3	6	8 8	10½	7-16		7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1v24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLCOTT & ABBOTT.

Factory, 9th street, near Contes, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

# THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorus,  
Glendon,  
Spring M.I. and  
Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**RAILWAY IRON.—THE BEST QUALITY** of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2. [1H] 68 Broad St. New York.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road,

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power

# NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

ja45

Reading, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

40f



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, }  
 Peter Cooper, } New York.  
 Murdock, Leavitt & Co. }  
 J. Triplett & Son, Richmond, Va.  
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Patton, Jr. }  
 Colwell & Co. } Philadelphia, Pa.  
 J. M. L. & W. H. Scovill, Waterbury, Conn.  
 N. E. Screw Co. }  
 Eagle Screw Co. } Providence, R. I.  
 William Parker, Supt. Bost. and Worc. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
 245 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by  
 A. & G. RALSTON  
 Mar. 20/1 4 South Front St., Philadelphia.

**V**ALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft. with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**T**WO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,  
 Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 117

## PATENT INDESTRUCTIBLE WATER

**P**ipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 2817

J. BALL &amp; CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7.11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. WALDO HIGGINSON, Agent.





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Wayneville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	\$1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 1/2 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**

Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/4 o'clock a.m.	12 1/4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

On Sunday.  
8 o'clock a.m. 9 1/2 o'clock a.m.  
4 o'clock p.m. 5 1/2 o'clock p.m.

Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 513y

**BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-**

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
Arrives at.....9 a.m. and 6 1/2 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 1/2 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 1/4 p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	\$1 50
" " Wrightsville	2 00
" " Columbia	2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.  
31 1/2 Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 9 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9 from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad**

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62 1/2
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20	pr. 100lbs. 35
Crockery, per cubic foot	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion)	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y31

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil)... \$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred. On hhd. and pipes of liquor, not over 120 gallons... \$5 00 per hhd. On molasses and oil... \$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Supt. Transportation.

**SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from**

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.**

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Mufreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.  
Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.**

Morning line.....9 o'clock a.m.  
Mail pilot line.....4 1/2 " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board. Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 251f

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50	and \$3.00
" " Reading,	58	2.25	and 1.90
" " Pottsville	34	1.40	and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.

Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcasttle & Frenchtown R.R.

Leave Philadelphia at 3 1/2 p.m. } No line on Sun-

Leave Baltimore... at 3 p.m. } day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2

p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

2d Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a con-

tinuous line, 408 miles in length, from Charleston

to Dalton (Cross Plains) in Murray county, Ga.—

32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton, 271 miles.	Between Charleston, and Dalton, 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Sup't. of Transportation.

Augusta, Ga., July 15, 1847.

44\*1y

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 32	1 54	1 10	1 05	0 41	0 36
and Knoxville & intermediate points.	0 32	1 54	1 10	1 05	0 41	0 36
and Chattanooga.	0 32	1 54	1 10	1 05	0 41	0 36
Between Augusta and Decatur and intermediate points.	0 32	1 70	1 15	0 85	0 80	0 90
and Knoxville & intermediate points.	0 32	1 70	1 20	1 15	0 85	0 80
and Chattanooga.	0 32	1 70	1 20	1 15	0 85	0 80
Between Charleston or Savannah and Decatur and intermediate points.	0 32	2 20	1 40	1 35	1 05	1 10
and Knoxville & intermediate points.	0 32	2 20	1 40	1 35	1 05	1 10
and Chattanooga.	0 32	2 20	1 40	1 35	1 05	1 10

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
 2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovel, Spades, Scythes, Smiths' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs.....  
 3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.....  
 4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.....  
 Per 100 lbs. Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 30
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1839 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	6 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

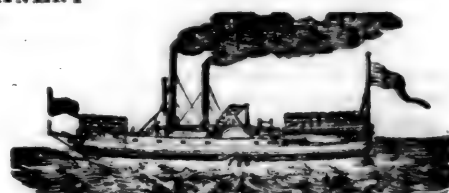


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 36

SATURDAY, SEPTEMBER 4, 1847.

[WHOLE No. 585. VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, September 4, 1847.

### Philadelphia Machinery.

The *Charleston Mercury* contains the following compliment to Philadelphia machinery. The locomotives in use are those belonging to the South Carolina railroad:—

"Our railroad now possesses a number of locomotives equal in power and finish to that of any other road in the country. Among them, the following are particularly worthy of examination:

"From *Norris, Brothers, Philadelphia*.—Eight-wheel passenger locomotive—John C. Calhoun; also six-wheel connected freight locomotive—Cerro Gordo.

"From *M. W. Baldwin, Philadelphia*.—Eight-wheel connected freight locomotives—Atlanta, Buena Vista, Coosa, Wateree, Chattanooga. Also the Rio Grande, six-wheel connected.

"From *Ross Winans, Baltimore*.—Eight-wheel passenger locomotive—Rough and Ready."

### Delphi and Cincinnati Railroad

The stockholders in this company met at the court house in this city, on Wednesday, says the *Chillicothe Advertiser* of Friday last, and it having been ascertained that a sufficient amount of stock had been subscribed to authorize the organization of the company, the following directors were chosen:

Felix Renick, Wm. Ross, Wm. H. Price, John L. Green, John Maderia, W. M. Anderson, of Ross county; Allen Trimble, Wm. O. Collins, of Highland county; Wm. P. Cutler, Noah L. Wilson, of Washington county; A. B. Walker, John Ballard, David Richmond, of Athens county.

At a meeting of the board of directors on Thursday, they organized by the election of Felix Renick president, Wm. Ross, treasurer, and the appointment of Seneca W. Ely, secretary.

## Railroads.

**Eastern Railroad.**—The *Salem Gazette* states that over one hundred and three thousand persons were conveyed over the Eastern railroad in the month of July last.

**Vermont and Massachusetts Railroad.**—A portion of this road, leased to the Fitchburg company, will be opened for freight and passengers on Wednesday next.

**Ogdensburg Railroad.**—The grading, etc., for 60 miles of this road, from Ogdensburg to Malone, is advertised to be let to contractors on the 23d September, at Ogdensburg.

**Lexington Railroad.**—The directors have made 600 shares of new stock, to be taken by stockholders at \$70, payable 15th September, 1st November, and 1st December.

The Northern, N. H., railroad has been opened as far as Grafton, 37 miles from Concord.

**Gloucester Branch Road.**—During the twenty days which this road has been open to Manchester, upwards of 4,000 passengers have been safely transported over the same. This is truly a great beginning, and augers almost unexampled success for the road, when, under complete equipments and arrangements, it shall be opened to Gloucester—an event expected to take place in all the month of October next. We understand that, for the present, Mr. Ebenezer Page, of Beverly, will officiate as conductor on this branch.

**Columbus and Xenia Railroad.**—The Little Miami railroad company, says Mr. Cist, under the authority in their charter to make branches running through any county in which their main line runs, have agreed to make a road from Xenia to the line of Greene county, to meet the railroad from Columbus. This will, of course, facilitate the completion of the Columbus and Xenia railroad at an early date. The rail route from Columbus to Xenia is straighter than the regular stage route between those places.

**The Muscogee Railroad.**—By a private letter from New York of the 19th August, says the *Savannah Republican*, we learn that the Wall street proprietors of the Macon and Western railroad have made their arrangements to run from Barnesville to the Flint river, leaving the connection from that point to the people of Columbus. Messrs. Cooper and Stroup will, it is said, furnish the rail at seventy-five dollars per ton, and take a portion of the stock in payment.

**The Fifth Dock** of the Schuylkill Navigation is now in use, although not fully completed. It was erected under the direction of the superintending engineer of the company, Elwood Morris, Esq., and is a noble and substantial structure. While it is durable, it also presents facilities for shipping any amount of coal that may be required without inconvenience or delay.

## Influence of Railroads.

A short time since, says the *Concord, N. H. Journal*, we met a heavily loaded team a little distance from town carrying chestnut sleepers to the depot. Being of a peculiar shape, we inquired to what use they were to be appropriated. The teamster replied that they were engaged by a contractor, and were to be shipped to Havana, to build a railroad in the Island of Cuba! Concord chestnut, once nearly worthless, now bringing a high price, and shipped 2000 miles to build railroads! We believe the teamster's load was worth about \$50, all clear gain through the magic influence of railroads.

A respectable citizen of our town, once resident in Springfield, on the dreary height of land between the Merrimack and the Connecticut, near which the Northern railroad is to pass, lately informed us he had tried long and earnestly to sell a lot of timber land for \$4 per acre, but all in vain. Not long since some gentlemen called upon him, and offered \$16 per acre, which he accepted, though he might have done better by waiting. This is by no means a solitary instance. They are of frequent occurrence in every part of the country.

## Railroad Scales.

Messrs. F. H. Benson & Co., of Cincinnati, says the *Times*, have manufactured a railroad scale which will weigh 40,000 pounds, and yet turn with the fraction of a pound weight. These gentlemen have become noted for their skill in the manufacture of all kinds of scales, from the apothecary's counterbalance, to the enormous instrument first mentioned. Success attend our western manufactures.

**ERRATA.**—In the last number of the *Journal*, page 550, under *Lehigh Coal Region*, the figures (20) for the miles of the Wilkesbarre and White Haven railroad, are placed in the wrong column—being under the head of canals.

Also same page, middle column, third line from top, read \$3,250,000.

**Railway Traffic.**

"From our official returns," says the Railway Chronicle of July 31st, "It appears that the amount of traffic for the last week, on upwards of 3,153 miles of railway, was £188,824, thus accounted for: £108,606 for the conveyance of passengers only, £40,476 for the carriage of goods, and a remainder of £39,742 for passengers and goods together, not respectively apportioned; being an increase of 16,175 over the corresponding week of last year, when the mileage was about 2,290."

**Coal Trade.**

We have been furnished with the following statement of the coal sent to market by the Schuylkill canal—which we shall publish as furnished weekly.

**SCHUYLKILL NAVIGATION.**—Week ending August 26th, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	5,624 01
Schuylkill Haven.....	594 06
Port Clinton.....	33 00
This week.....	6,253 07
Previously.....	121,956 14
Total.....	128,210 01

From the Philadelphia Ledger.

**New Railroad.**

The vast increase of tonnage annually requiring conveyance from our coal fields, and the success that has attended the Reading railroad, seem to awaken the capitalists of New York and Boston to the probability that there may be business for more improvements connected with the coal trade. At the present rate of increase, there will be perhaps two millions of tons more requiring means of transport in five years from this time. The Eastern papers inform us that the stock has been recently taken for the construction of a new railroad from Easton along the valley of the Lehigh, to the Schuylkill coal field, branching off to the Lehigh and the Pottsville mines, and also to the Susquehanna, via Tamaqua. From Easton to Somerville, N. J., the road is in progress of construction. From the latter place to the New York bay at Elizabethtown, it has been long in use.

When we look at the great number of canals and railroads, all well supplied with work, that are necessary to do the carrying trade of the mines of England, which are of less extent than ours, we feel entire confidence in the success of every avenue leading from our Schuylkill coal basin to tide water.—The Lehigh canal, the Delaware Division, the Morris canal, the Schuylkill canal, the Reading railroad and the proposed railroad across Jersey.

**The Iron Trade.**

We learn from the Mining Journal of 7th August, that railway bars remain about the same as at the last arrival, viz: £9, average, though "the export demand for Welsh bars improved in past month, and the lowest price is now £8 10s. in Wales, but some will not sell under £8 15s. Staffordshire prices continue firm, and the demand for hoops has lately been unusually large. Scotch pig has advanced 5s. to 7s. 6d. in the last four weeks. About the middle of July, a large business was done, but for the last fortnight transactions have been limited. The strike of the men is partially over, and it is expected that those who are still out will soon resume work at the proposed reduction of wages. Some recent arrivals of Swedish iron have been sold at £11 5s., but of steel no sales are reported."

"An improvement," says a correspondent of the same Journal, "of 5s. to 7s. 6d. per ton has taken place in Welsh bars since last month, and a consi-

derable business has been done both for exportation and home trade at the advanced rates. So full are some of the makers with orders that they cannot undertake to execute contracts before October next. Railway bars continue exceedingly dull. Staffordshire manufactured is still in fair demand, and makers are realizing full prices. Scotch pig iron has slightly advanced since last mail, owing principally to the strike of the men, and the small quantity in second hands. Staffordshire pig is in good demand at firm prices, but Welsh appears rather neglected. Swedish iron has been taken in small parcels at £11 5s., at which there are still sellers. Swedish steel remains flat at £15."

**The Great Canada Railroad.**

The Albany Evening Journal says that the railroad, so long talked of, from Hamilton to Detroit, is to be built. This is a fixed fact. The surveys have been made, the route located, and next month, 170 miles will be let out by contract. The road is to run from Hamilton to London, and from London to Windsor opposite Detroit—a distance of about 200 miles. The original route was to Port Sarnia, 60 miles above Windsor; but a compromise has been affected, and a branch is now to be run from a point 13 miles west of London to Sarnia. This satisfies the original projectors of the route from Fort Erie to Windsor, and also the Canada Land company, and others most interested in the route from Hamilton to Port Sarnia direct.

Although nominally running from Hamilton west—the principal track, in which American travel is interested, will start from Niagara Falls, at the point selected for the suspension bridge—the entire stock for which is already subscribed.

There can be no longer a reasonable doubt that the road will be built within three years. When finished, the trip can be made from the Falls to Detroit in 10 hours—a very great improvement upon locomotion, even in Summer, and in Winter to an extent only to be appreciated by those who have performed the weary journey.

In connection with this road, the road from Lockport to Rochester is projected. Its friends are making renewed efforts to fill up the stock. We are informed that the work will be placed beyond a contingency when \$200,000 additional stock is taken. But whether this is so or not, when the Canada road is built, the Rochester and Lockport road will be undertaken.

This Canada road is of vital interest to our own thoroughfares. When completed, it will draw immense travel in this direction, which now seeks other channels. It is but a link in the great chain to St. Louis. We may regret that it is to be first built through a foreign territory: but enterprise and commerce are making of "one blood all nations of the earth."

**Frankfort and Louisville Railroad.**

We are pleased to learn that "on Saturday, the 14th ult., the stockholders of the Frankfort and Louisville (Ky.) railroad met according to a call of the commissioners, for the purpose of electing directors for the ensuing year. It appeared that there were over 3500 shares taken, and nearly all was represented at the meeting. Whereupon C. Coleman, V. McKnight, J. Guthrie and W. H. Field, of Louisville; T. Smith, of Newcastle, and J. Swigert, were elected directors for the ensuing year. At a meeting of the directors on Monday, 16th, C. Coleman, Esq., was elected president of the company, and steps were taken to have an immediate survey and estimate made."

From the spirit evinced at the meeting, as well as by those interested in the construction of this road, we are induced to believe that the work will now be pushed on to an early completion.

It will be recollected that the people of Lexington and Frankfort, Ky., were among the early movers in favor of railroads. By referring to the "Table of Railroads in the United States," column d, it will be seen that the "Lexington and Ohio" railroad, or a part of that proposed road—28 miles—from Lexington to Frankfort, was opened for use in 1835—the same year that the Boston and Lowell, Boston and Worcester, and Boston and Providence roads in Massachusetts, were opened. Yet, unfortunately, those who took an active part in that early movement, were far in advance of most of the people in that, as well as most other, sections of the country, and were not sustained in their efforts; and when the road was opened from Lexington to Frankfort, the cost was so much beyond their expectations that the work was suspended; and, until recently we believe, little effort has been made for its extension to the Ohio river—although that part of the road which has been in operation since 1835, has been of comparatively little use to the public, and less to the stockholders.

It has, however, been leased out for several years to a company of gentlemen, of whom the late lamented Col. W. R. McKee—who fell fighting so gallantly, at Buena Vista—was one. He had the management of it, we believe, and had he lived, he would probably have been one of the most active in the work now under consideration; as we recollect well the interest he took in it, in the summer of 1845, when on a visit to New York. But, like a true American, as he was, when the call of his country reached him, he was second to no man, but among the first to offer his services—and with his brave companions, who made him their leader, he sought the post of danger, which proved to him—and many others of his gallant band—the post of honor and of death.

**Schuylkill Navigation Company.**

We received, in May last, a copy of the annual report of the President and managers of this company to the stockholders, at the close of their last years' operations; but by some means it got into the wrong "pigeon hole," and thereby has been sadly neglected. We are the more particular to account for this omission because we published at length the report of its near neighbor and rival, soon after its appearance.

From this report it will appear that an amount of labor was performed upon this work, almost unparalleled in this country, and at times, under the most discouraging circumstances. There are few men, if any, in the country, who could, under the circumstances—the market value of the stock of the company being at little more than half its par value, with a powerful rival work along side getting into successful operation—have accomplished what the president of this company has done. "But," as he says in his report, after enumerating the difficulties to be overcome, "nevertheless, the great object has been accomplished in a substantial and satisfactory style."

The capacity of the canal is now about three times as great as it was the year before—and nine times as great as when originally opened to the trade. The locks are 18 by 110 feet, and will pass boats carrying 180 tons.

The amount of business done thus far on the canal, since its completion, has not equalled, as we understand, the anticipation of some of its friends.



This disappointment arises, we apprehend, from a want of the conveniences and connections between the canal and the mines. The landings, or means of discharging coal from the cars into the boats was formerly owned by individuals, or companies, and not by the navigation company, and it was probably desirable to the latter company that a similar arrangement should again exist—but since the completion of the Reading railroad and the use of that company's cars, the operators have been relieved, to a great extent, from that expense, and they were, of course, not very desirous to incur it again, and therefore, there has been, up to the middle of this month, at least a want of landing room, or place for boats to take in coal. The navigation company has however taken very efficient steps to remove this difficulty—by the construction of spacious docks, and every convenience for discharging coal into the boats. They have also furnished an ample supply of cars to accommodate the business between the mines and the boats—thus placing the operators, who send by the canal, on the same footing with those who send by the railroad, in this part of the business.

Being on a visit to the coal region a short time since, we examined with some care, the work of the "enlargement" between Port Carbon and Schuylkill Haven, a distance of several miles, which we found to have been done in a substantial manner, and the "docks" in course of construction at "Port Carbon" and "Mount Carbon" will, when completed, be creditable to the company—and the engineer, Elwood Morris, Esq., and afford ample accommodations for a very large business.

It was our wish to have examined the enlargement generally, but such are the habits acquired by the rapid movements upon railroads, that no man has patience to waste his time upon a canal unless he is obliged to, especially when the accommodations are only those of a "coal boat"—even of the largest dimensions—we, however, saw enough of the work to be satisfied that there will be a large business done upon the canal again, when the company shall have completed their arrangements for its accommodation. We were also convinced more fully, if possible, than heretofore, that there is no necessity, or cause, for controversy between the two rival companies, now contending for the business of the Schuylkill region, as it will be impossible, or at least very difficult for them both, without very much increased facilities, to meet the demands upon them for the next five years. Why not, then, now come to an amicable arrangement as to the charges for transportation on each? The coal consuming community, which has been so largely benefited by these works, and which owes so much to the capitalists who have constructed them, will cheerfully pay prices that will give a fair return upon the investments—large as they are—and it is only necessary for the managers of the two works to agree upon fair, remunerating rates, and thus make their immense outlay of capital beneficial to all, those who have invested their capital, as well as those who use the articles transported at the very lowest rates ever known.

It may be deemed impertinent in us to suggest and urge this policy upon the two companies; yet we cannot hesitate to repeat what we have often before suggested, inasmuch as we consider it not only for the interest of those who have invested such an enormous amount of capital to accommodate the coal trade, but also just to those who have been so largely benefited by that outlay in the cost of fuel.

We have occupied more space than we intended

when we took up the pen to simply introduce and commend the following report, which we ought to have laid before our readers months ago. It will, however, be read, even now, with interest by those who have not yet had the opportunity.

The following is a list of officers and managers for the year 1847, viz.—

*President.*—Charles Ellet, Jr.

*Managers.*—Thomas Firth, John Sergeant, Jacob G. Morris, John C. Cresson, William E. Hacker, Samuel W. Lippincott, Thomas Williamson, John W. Claghorn, John R. Worrell, Charles S. Wood, James R. Greeves, Eli K. Price.

*Treasurer and Secretary.*—Claudius Harper.

*Report of the Managers to the Stockholders of the Schuylkill Navigation Company, January 4th, 1847.*

It is the duty of the President and managers to submit to the stockholders a report of their proceedings for the year which has just closed.

On assuming the labors of the responsible trust which was confided to them, one year ago, the Board were conscious that the affairs of the company had approached a crisis, which would call for the exercise of all their perseverance and fortitude. A great work had been commenced, which they were expected to complete with unprecedented rapidity, while the credit of the company had suffered under the influence of a remarkable competition, and the misrepresentations of hostile interests.

But that work was designed to open the way to the richest trade which this country offers to persevering enterprise, and they embarked in the labor with undoubting confidence in the issue.

They have now to congratulate the stockholders, that the first great object is attained, and that they possess an improvement ready to do its part in the competition about to ensue for the anthracite trade of Pennsylvania, and that they may look forward confidently for a speedy return for their outlay, and full remuneration for the labor which the work has cost.

On entering upon the duties of the year, the Board became convinced that the contracts which had been let, would greatly exceed the available means in their hands.

These contracts they were bound to fulfil, although but few of the contractors had taken any efficient means to fulfil their engagements with the company.

The old locks were torn down, and the greater part of the navigation was destroyed, while materials sufficient for the new locks were in few places provided, and, in many instances, neither stone nor timber was on the ground, and no preparation had been made for the work.

There were 71 locks and 11 guard gates to be built—of which more than two thirds were to be raised from the foundation; nearly all the culverts were to be lengthened; more than 150 bridges, and 26 or 28 dams to be raised; and all the pools to be cleansed and deepened.

About 40 of the lock foundations were yet to be laid in the river; the river was covered with ice, and there were few boats or scows

in the adjacent pools with which to transport the necessary materials to the work.

A brief review of their position satisfied the Board that there was but one course to be pursued, which could lead to safety and success—the bold course, which the general opinion of the stockholders had marked out, and which had been expressed in a resolution—to carry the whole work on to completion, in the face of these physical difficulties, as rapidly and as thoroughly as possible.

They accordingly proceeded at once to raise the necessary funds, and put the enlargement of the canal itself under contract—to man the new sections with all possible expedition—to augment the force on the work in actual progress—to relet, or place under competent superintendents, the abandoned locks, and to accumulate a force sufficient to complete the whole work, as they vainly hoped, in time to participate in the trade of the year.

But impediments intervened which baffled their efforts, and disappointed their well-grounded expectations.

The immense demand for labor in the coal region, on the line of the improvement, and in the repair and reconstruction of a neighboring work, gave rise to frequent turn outs among the hands, and rendered it impossible to obtain a greater force, at any one time, than about 4000 men.

The mechanical labor of the Schuylkill valley, and the adjacent country, was absorbed by this extraordinary demand; and an adequate number of masons and carpenters, with all the exertion the Board were capable of making, could not be raised to carry the work forward with a rapidity commensurate with their wishes.

To add to their embarrassment, the close of the winter proved to be unusually inclement, and the operations were frequently suspended by heavy snows, the melting of which, in the month of March, produced a freshet in the Schuylkill, and adjacent waters, of great violence and destructiveness.

The new works, in their unfinished state, were necessarily exposed, and being swept by the flood nearly the whole length of the river, were seriously injured at many points. The coffer-dams gave way before the weight of water, some of the foundations of the locks were torn up, the half finished pits of others were filled or destroyed, and the new banks were burst through in numerous places.

The works were re-commenced by the time the water had subsided, and the injured points were pressed with renewed exertion, in the expectation of yet overcoming these additional causes of delay, and gaining a part of the season's trade.

This hope was also disappointed. The water continued generally high for some weeks, and frequent small freshets occurred—such as would have been of little importance at ordinary times,—but still sufficient to overflow the coffer-dams, and produce much inconvenience in the conduct of work requiring the excavation of rock and earth, and the building of walls on the bottom of the river.

This state of things continued, with little

interruption, until the middle of May, when another fresh, equal to the first in violence, swept over the works, again destroying many of the coffer-dams, tearing out the foundations, and even the masonry of several of the locks, and sweeping off portions of the enlarged canal which had been twice completed.

After this occurrence, it became apparent that many of the contractors, who, it had been hoped, might yet finish the work which they had undertaken, could no longer be depended on for the fulfilment of their engagements.

The Board were accordingly compelled to enter upon nearly every difficult job; to engage superintendents, to build shanties, organize forces, and complete the work by the day.

This procedure—the only alternative that remained for their adoption—brought with it its own embarrassments. But, nevertheless, the great object has been accomplished; not, it is true, at as early a period as they had contemplated; not as soon as the great interests of the company rendered desirable; but in a substantial and satisfactory style, and with a rapidity which admits of no parallel in the history of the internal improvements of this country, if it has any parallel at all.

The capacity of the navigation has been made nearly three times as great as it was the year before, and nine times as great as that of the improvement when originally opened to the trade—an improvement which, as is still remembered, required ten years of laborious exertion on the part of the predecessors of the present Board, and ten years of patience and fortitude on the part of the original stockholders.

But in this year of intense application, we have been cheered by the prospect of secure, speedy and ample remuneration; by the certainty of enjoying a sufficient share of a vast and rapidly increasing trade, which we were preparing to convey to a wide spread market by the cheapest possible means of inland communication. *THEY*—our predecessors—had nothing but the speculations of their own prudent intellects to guide them.

They ventured to hope that *thirty thousand tons of coal per annum* might possibly pass over their line to market; we know that the Schuylkill mines now yield a million and a quarter of tons, and that some hundreds of thousands more are kept back for want of the means of conveyance, while the annual increase may now be set down at nearly ten times the value of their estimated trade.

To stand firm in their trials, required manly fortitude: to doubt with the prospects which we have before us is to lack capacity to judge of visible truth.

It is not deemed expedient or necessary to enter into all the details of the operations of this laborious year. It may suffice to say that the navigation has been increased from a canal of very irregular and contracted surface, to one averaging more than 70 feet in width; from a depth of 4 feet to nearly, if

not quite, 6 feet; and from a capacity to carry boats of 60 tons, to a capacity for boats of not less than 180 tons burthen. (See note 1.)

That 71 locks, (none less than 110 feet long by 18 feet wide,) and 11 stop gates have been built:

That 25 culverts have been lengthened, and 4 new ones built:

That 10 aqueducts have been raised, improved, and strengthened:

That 82 bridges, with their embankments, have been raised, and 74 new ones, of various descriptions, have been built:

That 22 dams have been permanently, and some others temporarily raised, and that 5 have been lengthened out so as to vent the floods of the river with more certainty:

That all the pools have been more or less deepened, and nearly all the old channels thoroughly cleaned out; and two entirely new channels cut for the river:

That divers new guard banks have been made, and many of the old ones raised and strengthened, for the better protection of the works:

That new sluices have been put in many of the dams, for the purpose of facilitating the future cleansing of the channels:

That 18 new waste weirs have been built, and 13 old ones raised and improved:

That the tunnel has been widened and enlarged, many of the towpaths have been raised, and new basins cut and walled, for the accommodation of the miscellaneous trade:

That 6 new lock houses have been built; the bottom and sides of the canal, in the worst portions of the limestone formation, have been lined with plank, and that buoys, floating or fixed, have been set in all the channels of which the navigation is at all doubtful:

That surveys have been made of all available streams which furnish sites for reservoirs, and several of the most valuable sites have been secured by purchase:

That ground for new landings has been secured, and the work of construction commenced:

That 120 boats and scows, and 150 additional cars have been constructed, and delivered to the company.

These are the things which have been accomplished: the labor which they have involved can only be appreciated by those who have witnessed or participated in it.

In the month of April, the engineer originally appointed to aid in conducting the work, tendered his resignation to the Board, and it was accepted.

The upper division, extending from the Girard outlet to Althouse's, 31 miles, was laid out and skilfully executed under the direction of Elwood Morris, civil engineer.

The next division, reaching from Althouse's to the outlet of the Girard canal, was placed under the general superintendence of Antes Snyder, civil engineer.

The completion of the upper portion of this division is mainly due to the skill and experience of Samuel Griscom. The lower portions were urged forward by several officers, with great diligence and devotion.

The work on the lower division, extending

from the Girard outlet to Fairmount, was conducted with indefatigable labor and attention, by James F. Smith, civil engineer.

To the skill and zeal with which Messrs. Morris, Griscom, and Smith have carried out the views of the Board, the company is much indebted for the rapid and substantial execution of the work.

The Fairmount lock was first prepared for the trade, and opened for the passage of boats on the 4th day of May.

The navigation was further opened, for small boats, as far as Phoenixville, on the 29th June, and for large boats as far as Reading, on the 11th September.

Large boats were able to pass throughout the line, from Port Carbon to Philadelphia, on the 16th of November.

Several small steamboats ran regularly and successfully on different parts of the navigation, as soon as the large locks were open, and some trips were made by them towards the close of the season with entire success, to Pottsville and Port Carbon.

The most heavily laden boat that descended during the year, conveyed 160 tons of coal, and drew 5 feet water; but there was a sufficient depth in all parts of the work to have passed the same boat with more than 180 tons.

Other boats descended with 130 and 140 tons, drawn as the old boats usually were, by two horses, and managed by three men.

It is fortunate for this company, and for the public interest, that, during the interruption of the navigation consequent on the prosecution of these extensive works, the trade of the coal region has continued its development, without suffering any very serious embarrassment. The trade of the Schuylkill navigation has been maintained by the vigorous exertion of a neighboring work, until the completion of the enlargement will enable this company to resume its legitimate business.

The details of the cost of this improvement, and an exposition of the company's financial affairs, will be exhibited in a sheet prepared by the treasurer, and appended to this report. (See statements A and B.)

It may, however, be here stated, that the aggregate investment of the company, on the first day of January, in stock and loans, including all ascertained liabilities of every description, as well for the construction of the work as for boats and cars, damages and real estate, amounted to the sum of

\$5,655,667 80

To this must be added for known liabilities, of which the amounts are not precisely ascertained, payable in bonds and cash, about

127,000 00

Making for the present aggregate investment,

\$5,782,667 80

There are yet some matters in litigation, and certain claims for damages to real estate, which have not been settled, the value of which, though not great, cannot be correctly estimated. (See statement C.)

TARIFF OF TOLL.

On the opening of the lower division of



the navigation as far as Phoenixville, in the month of June, a tariff of toll was adopted, which differed in its arrangement essentially from those in general use on other public works.

It has been the custom on canals and railroads, both in this country and Europe, to charge a certain established rate per ton per mile for the use of the improvement—not from any evidence that has ever yet been adduced that such a tariff is founded in justice or good policy—but, apparently, because that arrangement had been prescribed without much reflection, in the early characters of British canals, and has been subsequently imitated by those of later date in Europe and America.

In the tariff adopted by this Board, an attempt has been made to tax every article with due reference to the particular circumstances under which it is placed.

They do not fix on a rate of charge which is to increase blindly with the distance, because they cannot perceive how the ability of an article to bear taxation can possibly increase in proportion to the distance it must be carried.

The further an article is transported on the navigation, the greater is the sum which must be paid for freight; and the higher the sum paid for freight, the less, apparently, can the article bear to be taxed for toll. It would seem to be very unjust, then, to increase the charge for toll, precisely as the ability to bear the charge diminishes.

The producer of any cheap commodity above Reading, would be compelled to pay nearly four times as much freight for sending his property to Philadelphia, as the person who produces it at Plymouth. It is certainly, then, very unfair to make the same party pay four times as much toll also.

It is unjust, when the cost of freight amounts almost to a prohibition, to fix such a charge for toll as will make the prohibition perfect.

The only visible object that could be designed by establishing such a tariff, after its effect had been once perceived and appreciated, would be to secure the exclusion of the distant product—a policy which is certainly both unwise and oppressive.

But, admitting that a company may with propriety overlook the claims of justice and fair play, it is impossible to overlook the fact, that by excluding the distant product, and cutting off a source of trade, they diminish the revenue of the institution.

It might, indeed, be argued, that if the distant producer can afford to pay a given charge for toll, the nearer producer, under similar circumstances, and relieved of the extra cost of freight, can certainly afford to pay the same charge; that, in strict justice, the nearer a producer is to the market, the higher is the toll which his property will really bear; and that, so long as it is not taxed higher than that of his more distant competitor, he should consider himself the favored party, and offer no complaint.

It is for the company, whose duty it is to adjust the charges, to look to the circumstan-

ces of other lines, and so regulate the tolls as not to force the trade into the hands of rivals.

Although the season was very far advanced when any portion of the work was open to the trade, the Board have had sufficient opportunity to recognize the correctness of the views which led to the adoption of the present tariff, in the results already obtained.

The proceeds of every office below Reading exhibited a marked, and most satisfactory improvement over the corresponding periods of previous years; and the amounts both of the ascending and descending miscellaneous tonnage, show an increase, during the period the canal was open, which sufficiently demonstrates that the trade is receiving adequate encouragement to insure its future wholesome expansion. (See statements D and E.)

To be Continued.

#### Railway Accidents in England.

##### Long-Boiler Engines Running off the Road.

We find in the Railway Record, for 31st July, the following communication, in which it is contended that "long-boiler engines" are probably the cause of many accidents. It being a subject in which so many are deeply interested, we give it a place in the Journal for the purpose of calling attention to it:

SIR: As an adjourned inquest on a recent fatal case of running off the Brighton line is to be held on the 3d of August, I shall feel obliged by your insertion of the following note in your paper, of Saturday.

Those of your readers who are familiar with the history and progress of the locomotive engine during the last eighteen years, must be aware of the great fact, that the engines manufactured by Messrs. R. Stevenson & Co., up to about the year 1843, were rarely, if ever, known to run off a line, even when both the engine and road have been in but moderate order; and, moreover, that the engines made by various other makers, in imitation (or nearly so) of those introduced by Mr. Stephenson up to about the year 1843 were very nearly as successful in keeping on the road, and therefore it may fairly be considered, as proved by some fourteen years' experience, that certain constructions are very safe; and the writer was recently told by a gentleman connected with Messrs. Sharp, Brothers & Co., of Manchester, that whenever at liberty to do so, they still make their engines on the general form in use prior to 1843; and both they and other parties have, up to the present time, made engines of that construction, with the same satisfactory results as before, and with as much speed, with as much force, and with as much at least, if not more, economy in working than the modern long boiler engines. The Brighton company know this to be a fact from their own experience.

The reader will probably ask, how then is it that the long boiler engines have been so powerfully supported on so many lines of railway? I believe that it chiefly arises from two causes: First, the great influence of anything introduced from that quarter is not very easily to be set aside in consequence of its extensive connections with most of the leading lines, and the numerous and influential

train of confidence by which it is in most cases so deservedly supported, both by directors, officers, etc. Secondly, the general arrangement of the long boiler engine makes their construction much less expensive, and much more profitable to the manufacturers, the price obtained being about the same as for engines of a safer construction; and hence the majority of engine makers recommend them when they have a chance of doing so successfully; and before those combined influences are checked, it will probably require six times the loss of life and property now sustained by the long boiler engines running off nearly every line upon which they have been introduced, before the matter will assume sufficient importance for such a sifting inquiry as will cope with, or effectually check the influence which is still continuing and forcing that class of engines into public use.

Formerly it was considered—and soundly considered, too—by Messrs. Stephenson's party, that the less projecting weight there was over the axles, the safer the engines were; and even contended that the little extra projection of the extreme part of Mr. Barry's circular fire boxes was a serious objection, as it not only gave a greater motion and leverage to the projecting weights, but the force of such motions being governed by the square of the velocity of action, the matter was still more important, and led to the very general adoption of a third pair of wheels behind, as larger fire boxes became introduced. A view of that class of engines as made by Messrs. R. Stevenson & Co., until 1843, is given in the 89th plate of "Tredgold on the Steam engine," where the distances between the wheels, as compared with the extreme length from the front of the smoke box to the hind end of the fire box, is in the proportion of 10 to 13; while that of the long boiler engines are about 10 to 19, and hence the square of their lengths are as 169 to 361, or about 113 per cent. increased power of projecting weight to force the engines off the rails, when once put in action by the working of the engine, or from a little irregularity in the road. And it is no matter of surprise that long boiler engines should be found running off the line every now and then;—but that with such important odds against them in the principles of construction, the forces tending to twist the engine off the rails being increased so nearly up to the power of resistance of wrought iron, that when the irregular motion of the engine exceeds a certain point, the iron rails in most cases have proved no longer able to bear the excessive pressure of the wheel flanges against them, and have been fairly crushed off in splinters by the rounded and blunt surface of the flanges. The strength of rails and fastenings of the chairs which stood well with the construction of engines made up to 1843, have been found decidedly too weak for the motion of long boiler engines; with the latter class, I have frequently seen the vertical action between the engine and tender ranging from four to eight inches upon new roads, which, with an old steady engine, were freely pronounced both by the present and late

inspector general, as quite fit for public service.

For the purpose of urging the contractors to keep the road in better order on different occasions, I selected the long boiler engines for the purpose of pointing out, and magnifying to them, the imperfections of the road, which the long projecting boilers of that class of engines enable them to do to a dancing extent, which the former class of engines were altogether incapable of. And in attempting, and that successfully, to reduce in some degree the vertical action of the front and rear of those engines, some of the front and hind springs were reduced to very nearly the length used in Mr. Stephenson's, when they were not in the habit of running off the road in the manner long boiler engines have so repeatedly done. In the 89th plate of *Tredgold*, before referred to, the length of the front and hind springs are each twenty-six inches, and in reducing the length of some of the weak springs of the front and hind shafts of the long boiler engines, from three feet to twenty-four inches, it will be seen that I was adhering very closely to a good established practice as to length; and in engines projecting as extensively as they do, both over the front and hind axles, it is well known from experience, that much stronger springs are necessary than when the projection of the weight is moderate, as in Mr. Stephenson's former engines; but Mr. Winter, the young gentleman who has given it in evidence that he is the superintendent of Mr. Stephenson's patent engines, and that in his opinion the shortening of the springs was the cause of the engine running off the road, has not had much experience in such matters; and this may in part account for such an assertion.—The circumstance of his being too credulous to be believed, may further account for such an opinion. At any rate, the fact of that young gentleman being unfortunately too careless to be correct, may altogether account for an opinion so much at variance with not only their own drawings and experience, but with that of the whole country. The 'White Horse of Kent,' an engine made at Mr. Stephenson's establishment, went off the Dover line with long springs; and the numerous other long boiler engines which have gone off the road on the Eastern Counties', Great North of England, Hull and Selby lines, etc., since their recent introduction, had all of them long springs. By what sort of a side wind were they sent off the road? Certainly it was not by having short springs; in fact, such a shallow pretext as that of short springs only shows how hard the party are driven to throw dust in the eyes of the jury, if by any means they can be shuffled off from instituting a searching comparison between the extreme length of the boiler, and the distance between the front and hind wheels in engines which proves to the present day to keep on the road at any speed, as compared with the long boiler engines, which have frequently been running off the line—bursting out the chairs, and bending the rails of nearly every line they run upon.

Altogether the long boiler engines differ so materially, and are so opposite in principle,

to the excellent engines formerly made by the justly celebrated gentleman whose name they bear, that nothing but the most positive proof to the contrary will induce me to believe that they are the production of Mr. Robert Stephenson's long and extensive experience, or of his great scientific and practical knowledge.

J. GRAY.

*Gray Friars, Chester, July, 20, 1847.*

#### Menai Straits—Tubular Bridge.

The following remarks of General Pasley, late Railway Commissioner of England, in relation to this work, may be interesting to some of our readers, and we therefore give them a place.

*The Britannia Tunnel Bridge.*—As it is well known, that when examined before a select committee of the House of Commons on the 6th of May, 1845, on the means of passing the Chester and Holyhead railway over the Menai Straits, I approved of the tubular bridge then proposed by Mr. Robert Stephenson, engineer of that company. I think it a duty to myself, if not to the public, to offer some observations on the various projects for effecting the same object, successfully brought forward by him, of which that aluded to was the second.

In the first plan, which had previously been referred to me officially, by desire of the Earl of Dalhousie, in the month of February of the same year, when I had two interviews with Mr. Stephenson on the subject, he proposed to throw a massive substantial bridge, with two segmental cast iron arches, each of 350 feet span, over the straits, having a clear height above the water of 116 feet in the centre, and of 50 feet at the springing of each of those arches, which were to be supported by an intermediate pier of masonry, 120 feet wide, on a shoal called Britannia rock, and on two abutments also of masonry. His plan of operation for putting the pieces of iron for his arches together successively, so as to balance each other, by working outwards from the upper part of the pier, and of the abutments, until his semi-arches should meet at the centre of each opening, seemed to me to be crude and ill digested at the time, and either impracticable, or nearly so. As I had often previously reflected upon the subject, I gave Mr. Stephenson my opinion that, in consequence of the impossibility of obtaining any support from below, a suspension bridge such as that previously erected by Mr. Telford over the same straits, which being every where 100 feet high, offers no impediment to the navigation, and having in its present state strength enough to bear the weight of the heaviest railway train, but not with safety, owing to the flexibility and extraordinary undulations of the roadway in a gale of wind, might be rendered efficient for all railway purposes by four vertical trusses, one on each side of the two lines of rails, which, if of sufficient depth, would produce that rigid inflexibility of roadway, without which no railway bridge can be considered safe; a principle first adopted by Mr. Tierney Clark in the construction of the suspension bridge at Hammersmith, and more recently by Mr. Rendell, with no less success, in his repairs of the suspension bridge at Montrose, after

one-third of the roadway had been carried away by a storm, on the 11th October 1838, when I was travelling in the Highlands of Scotland, which drew my attention to the subject, and induced me to offer a paper on suspension bridges to the Institution of Civil Engineers, which was published in their *Transactions* for 1840. I further suggested to Mr. Stephenson, that a suspension bridge for passing a railway over the Menai Straits might be trussed to advantage by wrought iron lattice work, such as Sir John McNeill had adopted for passing the Dublin and Drogheda railway over the Royal canal near Dublin, by a bridge of 140 feet span. Afterwards the Lords of the Admiralty employed Sir John Rennie and Mr. Rendell, civil engineers, and Captain Vidal, R.N., to examine that part of the Menai Straits where the railway bridge was proposed, and to consider what conditions they thought necessary to prevent the navigation from being injured.—On receiving their report, the admiralty required that the Chester and Holyhead railway company, in making their bridge over the Menai Straits, should not construct the central pier on Britannia Rock wider or longer than 50 feet, and that there should be two openings between it and the abutments, each of 450 feet in clear width, and everywhere to be of 105 feet in clear height above high water level.

Mr. R. Stephenson's second plan, when thus obliged to withdraw the former, was to erect a suspension bridge of the usual construction, in order to obtain a platform for his further operations as I had before suggested. But the sort of bridge which he now proposed to put together by this means was of a novel and very ingenious construction, consisting of two large tubes of boiler iron, illeptical in section, and each measuring 30 feet by 15, in clear height and width; and, as he proposed that these tubes, though resting on a central pier of masonry, were to pass entirely across the straits from one side to the other, observing the conditions prescribed by the admiralty, it is evident that they could not be much less, than 1000 feet in length when finished.

On the 5th of April, and afterwards on the 6th of May, 1845, Mr. R. Stephenson admitted, in examination before the select committee of the House of Commons, that the above was the only possible mode of throwing a bridge of such large openings over the Menai Straits, but he had so much confidence in the strength and rigidity of his proposed tubes, that, after they should be placed, he thought the suspension apparatus might be removed with safety. When I was examined by the same committee, on the last named day, I gave my opinion that the tubular bridge proposed by him would be strong and safe; and that, when properly fixed, it would not be injured by gales of wind, though I was not convinced that such tubes would be better than vertical trusses; but I differed entirely from the suggestion Mr. R. Stephenson had thrown out, as to the expediency of removing the suspension apparatus—a measure which I thought would not only be unnecessary,



but that it might endanger the security of the bridge.

From this, his second project, Mr. Stephenson has since departed, having been induced to give up illiptical and adopt rectangular tubes, in consequence of experiments tried at his request in 1846, by Mr. W. Fairbairn & Mr. E. Hodgkinson, both very experienced and skilful in the uses of iron, as applied to practical architecture and engineering, and the latter having investigated the subject mathematically, and laid down rules which have been published, and are deservedly held in high estimation; this, however, may be considered rather a modification than a change. Not so the decision afterwards adopted by Mr. Stephenson, of abandoning the suspension principle altogether; instead of which he now proposes, as I have been informed by Capt. Moorsom, R.N., chairman of the Chester and Holyhead railway company, to put together in succession each of his tubes, which, according to this new arrangement, will be four in number, on a bridge of boats which will first be formed parallel to the shore, and will then be swung into the proper transverse position by the quarter circle movement, common in the practice of military bridges, after which the tube is to be suspended by chains; and though either of the sides will expose to the wind a surface of at least 1400 square feet, considerably exceeding the area of all the sails of a 28 gun ship, and will weigh, as I am told, about 1200 tons, each of these unwieldy masses, is to be raised up nearly 100 feet, by hydrostatic pressure and thus deposited and fixed on the lofty pier and abutment of masonry. If the proposed modes of passing the Chester and Holyhead railway over the Menai Straits had not been twice referred officially to me, as before stated, I should not have made any comments upon Mr. Stephenson's proceedings—but, under the circumstances above stated, I feel it my duty to express my entire dissent from this rash, if not impracticable, plan of operation, which cannot even be attempted without the risk of some very serious disaster, except at the high water slack of a deep tide, and in a perfect calm.

He has now, to my knowledge, proposed three projects, which have just been described all widely differing from each other, for passing the Chester and Holyhead railway over the Menai Straits; and I think that his second plan, the only one which I approved, would have been sufficiently arduous in itself, without adding to the difficulty, and diminishing the safety, of the attempt by the abandonment of the suspension principle; if he persists in this, his third plan of operation the chances are, that the first tube which he attempts to raise will find its way to the bottom of the straits.

Notwithstanding the objections publicly made by Mr. Locke, at Chester, to the interference of government departments with railway bridges, every disinterested person will admit that the lords of the admiralty only did their duty in putting a salutary veto upon Mr. R. Stephenson's first project, which, if it could have been carried into effect, of which

I entertain great doubts, would have seriously injured the navigation of the Menai Straits, by rendering them impassable for many of the coasting vessels now employed there.

#### Railways and their Early Opponents.

The following paragraph, which we find in the London Mining Journal, of August 7th, is so truthful, that we give it a place—with the simple observation, that the same remarks are equally applicable at the present day.

When Jacquard, the inventor of the wonderful loom that bears his name, was arrested and carried to Paris, with his machine, Carnot, in the presence of Napoleon, roughly said to him, "Are you the man that pretends to do that impossibility—to tie a knot in a stretched string?" His compatriots of Lyons, the impossibility being surmounted, broke his machines in 1806, and raised a statue to his memory in 1840. All those who are in advance of public opinion must bear ridicule or persecution. In 1825, the Quarterly Review thus ridiculed the notion of certain engineers—Telford among the rest—that a railway engine could go 18 or 20 miles an hour: "The gross exaggerations of the powers of the locomotive steam engine, or, to speak English, the steam carriage, may delude for a time, but must end in the mortification of those concerned." We should as soon expect the people of Woolwich to suffer themselves to be fired off upon one of Congreve's ricochet rockets, as trust themselves to the mercy of such a machine, going at such a rate." In that year, the common belief was, that railways were altogether delusions and impositions. The Liverpool and Manchester railway was opposed in Parliament with every form of invective. One member, in 1825, declared his opinion, "that a railway could not enter into successful competition with a canal. Even with the best locomotive engine, the average rate would be but 3½ miles per hour, which was slower than the canal conveyance." (Hansard, 2d series, vol. iv. p. 853.) Another assertion, which Mr. Huskisson was obliged to meet doubtfully and apologetically, was, "that there were two or three canals which were sufficient for every purpose of commerce in the districts through which the railway was to pass."—Let us be just to what we have been accustomed to decry as the dark ages. Let us be tolerant to those who imprisoned Galileo, and rewarded Columbus with chains. If there be a reality in any discovery—a true thing, and not a sham—if there be strength, or utility, or beauty in any work of mind—it will live and fructify, whatever critics, or orators, or inquisitors, or even kings, may do to crush it. And so it is with railways. On the 15th September, 1830, the first passenger line—the Liverpool and Manchester railway—was opened. The conveyance of passengers appears originally to have been an inferior consideration to the conveyance of goods; and the directors modestly anticipated that one-half of the passengers travelling by coaches between the two towns, might venture on the railway. In the first year after the opening, there were conveyed 445,000 passengers; in the year ending 1st July, 1845, the passen-

gers so conveyed amounted to 897,000. On the 24th April, 1847, there has been a total expended on the railways of the United Kingdom, of £78,000,000 sterling; and in the last week the aggregate receipts upon these railways was £160,000, being a total exceeding £8,000,000 per annum, for the conveyance of passengers and goods.

#### Pennsylvania the Pioneer in Internal Improvements.

*The Coal and Iron Trade of Pennsylvania in 1847.*

We continue in this number our extracts from Mr. Child's pamphlet. He says:

Now, by way of contrast, let us take the total amount of capital invested in all the manufacturing establishments at Lowell, and see how it compares with the above expenditures. During a visit to that remarkable city, last summer, we obtained a copy of the "Statistics of Lowell Manufactures for 1846." From it we learn the following particulars. The amount of capital invested in all the factories, including buildings, machinery, houses, for the operatives, etc., is as follows:

Merrimack Manuf. Co., capital,	\$2,000,000
Hamilton " " "	1,200,000
Appleton " " "	600,000
Lowell " " "	600,000
Middlesex " " "	750,000
Suffolk " " "	600,000
Lawrence " " "	1,500,000
Tremont Mills, " "	600,000
Boott cotton mills, " "	1,200,000
Massachusetts cotton mills, " "	1,200,000
Lowell machine shop, " "	300,000

Total capital, \$10,550,000

Thus it will be seen, that the whole amount invested in all the manufactories at Lowell, is less than one-third of the sum actually expended in constructing avenues for bringing Pennsylvania coal to market.

The increase in the shipments of coal coastwise from the commencement of the trade, is instructive.

The annual shipments of coal coastwise, from this port have been as follows:

Year	Vessels carrying	Tons
1822,	4	181
1823,	11	1,123
1824,	40	3,958
1825,	190	19,378
1826,	271	27,413
1827,	397	39,327
1828,	469	45,915
1829,	489	47,100
1830,	644	63,137
1831,	563	55,640
1832,	1,592	158,442
1833,	2,010	198,168
1834,	1,575	156,154
1835,	2,361	267,139
1836,	3,225	344,812

During the subsequent nine years, our returns are incomplete.

With great labor, and the aid of several kind friends, we have been enabled to ascertain with great accuracy, the total number of vessels, and their class, which cleared from this port in 1846, and the quantity of coal despatched. This statement will serve to illustrate the great value of this branch of our business in a commercial point of view.

During the year 1846, there were cleared from Richmond, the depot of the Reading railroad company,

Ships,	1
Barks,	23
Brigs,	341
Schooners,	4,092
Sloops,	935
Steamboats,	14
Barges,	928
Boats,	1,150

Total, 7,485

The quantity of coal (Schuylkill) shipped in the above vessels amounted to 883,489 tons.

During the same period, there cleared from this city and at Bristol, laden with Lehigh coal, fourteen hundred and sixty-eight vessels exclusive of boats, carrying 181,792 tons.—As far as ascertained, these vessels comprised

Barks,	2
Brigs,	135
Schooners,	682
Sloops,	178
Barges,	186
Steamboats,	3
Class unknown,	282

Total, 1468

Total number of clearances from the port of Philadelphia in 1846, eight thousand nine hundred and fifty-three vessels, carrying one million sixty-five thousand two hundred and twenty-eight tons of coal, in addition to the quantity shipped in boats from the Lehigh mines.

The quantity of coal which passed through the Delaware and Raritan canal, to New York has been as follows:

In 1842,	171,754 tons.
1843,	198,332 "
1844,	267,496 "
1845,	372,072 "
1846,	339,924 "

The total number of arrivals at New York from foreign ports in 1845, was 2,041, and in 1846, 2,289; consisting of 571 ships, 425 barks, 901 brigs, 582 schooners, 7 steamboats and 3 galliots. We have been kindly furnished by Gen. Bogardus, the collector of that port, with the exact tonnage of these vessels; in 1845, the total tonnage from foreign ports was 577,386 tons, and in 1846, 627,579 tons, including 4 steamboats. Now let us compare this statement with the amount of coal shipped from Philadelphia in the same period, 1,065,228 tons, or 437,648 tons more than the whole tonnage arriving at New York. As many vessels will carry more than their registered tonnage, we will add 25 per cent. to the above amount, which would increase the tonnage to 784,474 tons—being nearly 300,000 tons less than the quantity of coal shipped from Philadelphia.

Does not this fact speak volumes in favor of our coal trade?

As a nursery for seamen, the Pennsylvania coal commerce, even in its infancy is entitled to consideration, in a national point of view. There is no department of our commerce, if

we except the whale fisheries, which gives employment to so many vessels, or to so great an aggregate tonnage, or which calls into service so many seamen. In any emergency which might arise in the defence of our extended and dangerous sea coast, here would be found a body of hardy, bold and active men, trained for dangerous service, and equal in the most important qualifications, to the best seamen in our national vessels. Great Britain has for many years fostered her coal trade, with a view to the rearing up of seamen, to man her "wooden walls." Admiral Collingwood, and many other of her naval heroes, were trained on board British colliers.

It is not saying too much to assert, that the coal of Great Britain has been one of the chief sources of her prosperity—a prosperity which mines like those of Peru and Mexico would perhaps never have secured. That shrewd and sagacious writer, McCulloch, observes, in his Commercial Dictionary, "It is the possession of her coal mines, which has rendered Britain, in relation to the whole world, what a city is to the rural district which surrounds it—the producer and dispenser of the rich products of art and industry." If this remark be just, how clear is it that Pennsylvania must hold such a relation to the United States, if not to our whole continent. The more our position is contemplated, in the light either of history, or of sound judgment in regard to the elements of prosperity, the more clearly must it be seen, that the coal and iron of our mountains have an importance to our nation, not easily exaggerated.

On what grounds can our government reasonably hesitate to put forth her best energies for the sustaining of the great coal and iron interest of Pennsylvania—a Pennsylvania interest indeed, geographically, but a national interest in all its great ultimate bearings, if such a thing as a national interest, can be known or conceived of.

We feel that such statements as those which we present to our readers must powerfully arrest the attention of thinking men. In thus exhibiting, in an accurate statistical manner, the resources of Pennsylvania, we cannot be exposed to the imputation of a vain glorious spirit, and the information communicated must be new in a great measure, to most of our readers, and impressive to all.

In continuing our remarks on the Pennsylvania coal trade, we cannot forbear to quote the language of some eminent British writers in reference to the connection between the possession of coal mines and the prosperity of a nation.

The president of the British Statistical Society, Mr. Porter, speaks of the coal mines of England as "the source of greater riches than ever issued from the mines of Peru." He adds—"But for our command of fuel, the inventions of Watt and Arkwright would have been of small account; our iron mines must have long since ceased to be worked, and nearly every important branch of manufactures which we now possess, must have been rendered impracticable, or at least have

been conducted upon a comparatively insignificant scale."

The well known Professor Buckland says—"The amount of work done by steam in England, has been supposed to be equivalent to that of three or four hundred millions of men, by direct labor; and we are almost astonished at the influence of coal and iron and steam, upon the fate and fortunes of the human race. It is 1800 feet below the earth's surface. It rows, it pumps, it excavates, it carries, it draws, it lifts, it hammers, it spins, it weaves, it prints. We need no further evidence to show that the presence of coal is, in an especial degree, the foundation of increasing population, riches and power, and of improvement in almost every art which administers to the necessities and comforts of mankind."

A writer in a well known English periodical, pronounces coal "the chief source of the national wealth and power, and the foundation of our manufacturing industry. Without such a supply of fuel, our iron, lead, tin and copper ores must have remained in their beds."

Of coal, and its proximity to iron ore, Professor Bakewell remarks, "The frequent occurrence of these minerals together, both destined in future to give to man an extensive empire over the elements, and to contribute largely to his means of civilization and comfort, cannot fail to impress the reflecting mind with evidence of prospective designing intelligence."

In a parliamentary document, Mr. Buddle the eminent engineer, states, in a striking manner, his view of this subject: "Should our coal mines ever be exhausted, the manufacturing interest would melt away at once. We should lose many of the advantages of our high civilization, and much of our cultivated ground must be shaded with forests, to afford fuel for the remnant of our present population."

Mr. McCulloch, author of the Commercial Dictionary, says—"Our coal mines are the principal sources and foundation of our manufacturing and commercial prosperity.—Since the invention of the steam engine, coal has become of the highest importance as a moving power; and no nation, however favorably situated in other respects, not plentifully supplied with this material, need hope to rival those that are, in most branches of manufacturing industry. The citizens of Glasgow, Manchester, etc., are able, at a small expense comparatively, to put the most powerful and complicated machinery in motion, and to produce results quite beyond the reach of those who have not the same command over coal or (as it has been happily defined) boarded wealth. Our coal mines have been sometimes called the Black Indies; and it is certain they have conferred a thousand times more real advantage on us, than we have derived from the conquest of the Mogul Empire—or than we should have reaped from the dominion of Mexico or Peru.

When we remember that Pennsylvania is the only State which possesses anthracite coal (in any amount worthy of mention,) and when



we notice the remarkable fact that she is the only State which has direct access by water at once to the ocean, the lakes and the Mississippi, we perceive that her position, as well as her internal resources, is such as to justify very high expectations in reference to her future wealth and influence. Estimates based on the United States census of 1840, and other statistical returns, place the total value of real estate in Pennsylvania at \$1,400,000,000 at the value of personal property at \$700,000,000, making an aggregate capital of \$2,100,000,000—more than three times that of New York! This result, striking as it is, becomes less astonishing, the more we contemplate the peculiar endowments of Pennsylvania.

The three anthracite coal fields of Pennsylvania, are each about 65 miles in length, and 5 miles in width; embracing an area of 325 square miles, or 280,000 acres each.—The aggregate is 975 square miles or 624,000 acres.

We estimate the supply of anthracite coal for 1847, at 2,800,000 tons. The value of this quantity at \$4 per ton, which may be taken as the average price at tide water, is \$11,200,000. The importance of this trade to the city of Philadelphia, while it is great in other respects, is shown strongly in the fact that a large portion of the coal lands are owned here, and the revenue therefore reverts to our citizens. The constantly increasing use of this fuel in other parts of the country, tends to keep the balance of trade with other cities continually in our favor; and this tendency must increase with the increasing demand for our coal. The coal trade of Great Britain has made the port of Newcastle, which would otherwise be an unimportant place, second only to London in the amount of its shipping. A similar effect must our coal trade have upon the port of Philadelphia making it the great shipping port of the Union.

It is interesting and amusing to look back to the first attempts made to use the anthracite coal, and to bring it to market. Our venerable friend, Hon. Charles Miner, of Wilkesbarre, in his published account of his first efforts, in connection with Mr. Cist, and other associates, relates some pleasant anecdotes.

A hunter had first discovered the black earth which covers the coal at Mauch Chunk, and reported the discovery to Jacob Weiss, Esq., of Lehigh, who caused an examination to be made, and found anthracite coal within ten feet of the surface. The land, which had not been appropriated, was immediately taken out of the land office, and a company was formed, which partially opened the mine, and brought some small parcels of coal to Philadelphia. The difficulty of kindling the coal, prevented its introduction into use, and the project slept for twenty years.—During the war with Great Britain, bituminous coal rose to high prices. Judge Jesse Fell had shown that anthracite coal could be burned in grates, and it had been for several years used in Wilkesbarre and the neighboring towns. The demand for fuel in Phila-

delphia now led Mr. Miner and Mr. Cist to contrive a plan for mining and transporting the Mauch Chunk coal. On the 9th of August, 1814, they started off their first ark from Mauch Chunk. "In less than eighty rods from the place of starting, the ark struck on a ledge, and broke a hole in her bow.—The lads stripped themselves nearly naked, to stop the rush of water with their clothes." In six days, however, the ark reached Philadelphia, with its 24 tons of coal, which had by this time cost fourteen dollars a ton. But, says Mr. Miner, "we had the greater difficulty to overcome of inducing the public to use our coal, when brought to their doors. We published handbills, in English and German, stating the mode of burning the coal, either in grates, in smith's fires, or in stoves. Together we went to several houses in the city, and prevailed on the masters to allow us to kindle fires of anthracite in their grates, erected to burn Liverpool coal. We attended at blacksmith's shops, and persuaded some to alter the Too-iron, so that they might burn the Lehigh coal; and we were sometimes obliged to bribe the journeymen to try the experiment fairly, so averse were they to learning the use of a new sort of fuel."

How like a fable all this seems at the present day! As we sit before our coal fires, and think of no other, how little do we realize that thirty years ago Mr. Miner and Mr. Cist were trying the experiment of an anthracite fire at Wilkesbarre, and wondering whether they could not float an ark load of the coal to Philadelphia! Now we are reckoning the coal trade in millions of tons!

In the Schuylkill region the effort was made a little earlier. In 1812, Col. George Shoemaker loaded nine wagons with coal at the place now known as the Centreville mines, and proceeded to Philadelphia.—"Much time was spent by him in endeavoring to introduce it to notice, but all his efforts proved unavailing. Those who deigned to try it, declared Col. Shoemaker to be an impostor for attempting to impose stone on them for coal, and were clamorous against him. Not discouraged by the sneers cast upon him, he persisted in the undertaking, and at last succeeded in disposing of two loads, for the cost of transportation, and the remaining seven he gave to persons who promised to try to use it, and lost all the coal and charges."

These early persevering efforts cannot but be regarded now with grateful interest. To the enterprize of those men we are indebted for the knowledge of the great resources which now baffle computation. Let any one look around at our coal wharves and coal yards, and then look back a little more than thirty years, and in imagination see Mr. Shoemaker and Mr. Miner going about our city to find some one who would consent to try the despised stone coal in his shop or his fire place, and denounced as enthusiasts, or even impostors!

The consideration of the coal of Pennsylvania leads us naturally to speak of her beds of iron ore, and of the manufacture and uses of this metal. Before proceeding to this subject, it is proper to remark that in exhibiting

the present state of the coal trade, we might have taken into view the fact that the *Schuylkill Navigation*, which has been undergoing enlargement, has necessarily been out of use for the past year, and that its capacity for transportation is now greatly increased.

NOTE.—Perhaps we should have before stated that all the companies in the Lehigh region own their own mines; but the value of them has in no case been included in our statement of the cost of the different railroads and canals. The Lehigh Coal and Navigation company, for instance, own 15,928 acres of land, upwards of 6,000 acres of which contain coal; out of 30 acres of land, 1,100,000 tons have already been mined and sent to market. The Little Schuylkill company's lands and improvements cost upwards of six hundred thousand dollars, in addition to the cost of their road. The aggregate value of the lands and improvements is of course very large. In the Schuylkill region a single company has expended \$50,000 for steam engines and other fixtures.

To be continued.

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.** Proposals will be received at this office, and at the office of the Resident Engineer, in Gardiner, until the 21st of August, for the Grading and Masonry of 21 miles of this road, extending from Bowdoinham to Augusta.

The line of road and the plans and profiles will be ready for examination on the 12th of August, after which time any information in relation to the work can be had at the engineer's office in Brunswick and Gardiner, or of the resident engineer on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to complete the work.

The remainder of the line from North Yarmouth to the depot of the Portland, Saco and Portsmouth Railroad in Portland, 15 miles, will be ready for contract on the 18th of September, of which due notice will be given. **GEORGE S. GREENE,**  
Engineer K. & P. R. R.

ENGINEER'S OFFICE, K. & P. R. R.)  
Brunswick, July, 12, 1847.

233

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

**C. B. STUART,** Engineer.  
Hamilton, July 30, 1847.

2m39

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.  
New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse E. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**SPRING STEEL FOR LOCOMOTIVES.**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

**A. & G. RALSTON & CO., NO. 4**

South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/4 inch Flat Punched Rails, 20 ft. long.

25 " 2 1/2 x 1/4 " Flange Iron Rails.  
75 " 1 x 1/4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

26f

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merrihew, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

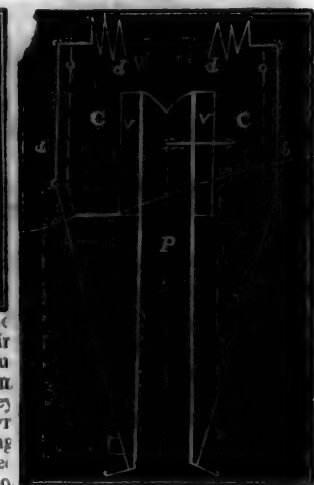
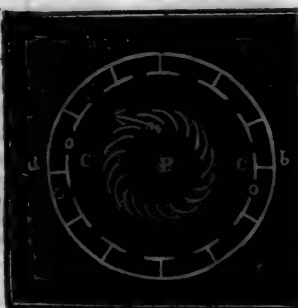
**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
Patterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

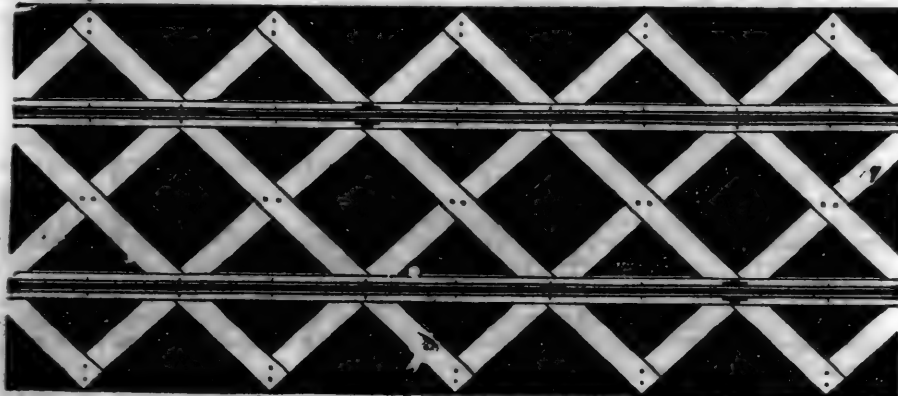


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10f

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4¢ =		101 25
Workmanship free of patent charge.		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**  
Civil Engineer and Patentee.  
No. 277 South Third St., Philadelphia. 33f

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE

Pres't. Mt. Savage Iron Works,

Dec. 25, 1y\*

Maryland.

ENGINEERS' AND SURVEYERS'

INSTRUMENTS MADE BY

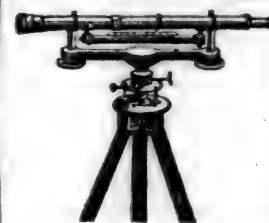
**EDMUND DRAPER,**

Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

**ANDREW MENEELY.**

West Troy, May 12, 1847.

1y\*21

## PIG AND BLOOM IRON.—THE SUBSCRI-

bers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**

Vine St. Wharf, Philadelphia.

12f

## RAILROAD IRON.—THE "MONTGOMERY"

Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

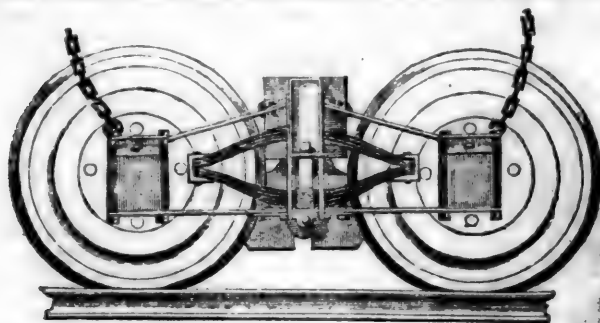
## LAWRENCE'S ROSENDALE HYDRA-

lic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection, in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills), and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.] WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup' Motive Power

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halvards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.			STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.		Tons.
11	4 1/4	13 5	10	24 -		50	15-16		20
13	3 1/2	9 3	8 1/2	16 -		27	11-16		13 1/2
14	3 1/4	6 11	7 1/2	12 8		17	9-16		10 1/2
15	2 3/4	5 2	6 1/2	9 4		13 1/2	1-2		7 1/2
16	2 1/4	4 3	6	8 8		10 1/2	7-16		7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

## RAILROAD SCALES.—THE ATTENTION

of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

## RAILWAY IRON.—THE BEST QUALITY

of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,

Jan. 2.

[1tf]

68 Broad St., New York.

## NICOLL'S PATENT SAFETY SWITCH

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.

The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

## RAILROAD IRON.—THE NEW JERSEY

Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10tf

## RAILWAY IRON.—DAVIS, BROOKS

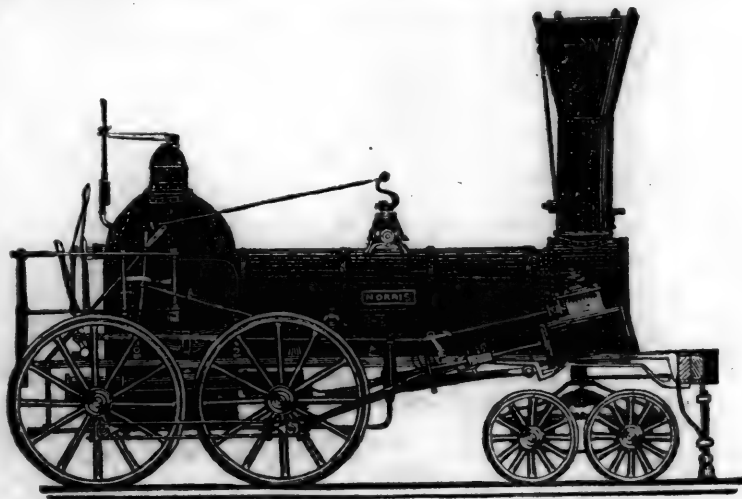
& Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, also, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

40tf



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	x 20 inches Stroke.
"	2,	14	" " " x 24 " "
"	3,	14½	" " " x 20 " "
"	4,	12½	" " " x 20 " "
"	5,	11½	" " " x 20 " "
"	6,	10½	" " " x 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK.** F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
 Peter Cooper, }  
 Murdock, Leavitt & Co. }  
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 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Patton, Jr. } Philadelphia, Pa.  
 Colwell & Co. }  
 J. M. L. & W. H. Scovill, Waterbury, Conn.  
 N. E. Screw Co. } Providence, R. I.  
 Eagle Screw Co. }  
 William Parker, Supt. Bost. and Worc. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardiner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works situated in the town of Newcastle, Del. Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
 a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by  
 A. & G. RALSTON  
 Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL** Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 8,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 ft., with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, trums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45x20 feet, containing a large air furnace, cupola, crane and iron oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 51x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia.

**TWO LOCOMOTIVE AND MARINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,  
 Warehouse S. E. corner 3d and Walnut Sts., Philadelphia

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

2nd

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent.







# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3 50	and \$3 00
" " Reading, 58		2 25	and 1 90
" " Pottsville, 34		1 40	and 1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 1/2 p.m. No line on Sun.

Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail.

Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2 p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

2d Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—33 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton, 171 miles.	Between Charleston and Dalton, 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 7
Molasses, per hogshead.	8 50	13 50
" " barrel.	2 50	4 25
Salt per bushel.	0 18	
Salt per Liverpool sack.	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Supt. of Transportation.

Augusta, Ga., July 15, 1847, 441y

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Mazon	and Decatur and intermediate points.	0 22 1/2	1 54	1 10	1 05	0 81	0 86
Between Augusta	and Knoxville & intermediate points.	0 22 1/2	1 54	1 10	1 05	0 76	0 81
Between Savannah	and Chattanooga.					0 61	0 66
Between Mazon	and Decatur and intermediate points.	0 24	1 70	1 15	1 15	0 85	0 90
Between Augusta	and Knoxville & intermediate points.	0 24	1 70	1 30	1 30	0 80	0 85
Between Savannah	and Chattanooga.					0 65	0 70
Between Mazon	and Decatur and intermediate points.	0 32	2 20	1 35	1 35	1 05	1 10
Between Augusta	and Knoxville & intermediate points.	0 32	2 20	1 40	1 40	1 00	1 05
Between Savannah	and Chattanooga.					0 85	0 90

1st class.—Boxes of Hats, Bonnets and Furniture per foot.  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smith's Bellows, Baskets, Tubs, Sitters, Brooms and other light articles, per 100 lbs.  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Lumber, per 100 lbs.  
Cotton, per 100 lbs.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.	\$0 20
Second class, per 100 lbs.	1 20
Cotton, per 100 lbs.	0 55
Third class, per 100 lbs.	0 60
Fourth class, per 100 lbs.	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

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PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.	\$125 00
One column " "	50 00
One square " "	15 00
One page per month.	20 00
One column " "	8 00
One square " "	2 50
One page, single insertion.	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum.	5 00



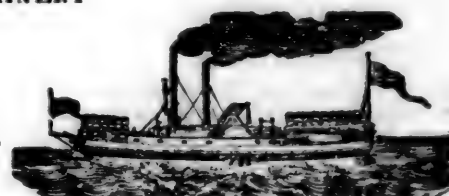
# AMERICAN RAILROAD JOURNAL,

## AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 37.] SATURDAY, SEPTEMBER 11, 1847. [WHOLE No. 586, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, September 11, 1847.

TO CONTRACTORS we would say, look at the following Advertisement.

**NOTICE TO CONTRACTORS.—ANDROS, COGGIN AND KENNEBEC RAILROAD.**  
Proposals will be received at the Treasurer's Office in Waterville, until the 25th of September next, inclusive, for the Grading and Masonry of the 3d Division of this road, extending from East Readfield to Waterville, about 20 miles.

Also, for such sections of the 2d Division as shall not be previously disposed of.

Profiles will be ready for examination on the 20th of September, and any information respecting the line can be obtained on application to the resident Engineers.

On the 24th of September the Engineer will be at Winthrop, and will be prepared to accompany contractors over the line of the road.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office Lewiston,  
August 25th, 1847.

3137

**RAILROAD IRON.—400 TONS ENGLISH,**  
60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,  
68 Broad Street, New York.

1m37

**FOR SALE.—300 TONS (10 MILES) FLAT**  
Bar Rail, in parcels or wholesale—section 34 inches wide by 1 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,  
Wilmington, Del.

1m37

**RAILROAD IRON.—500 TONS OF BEST**  
quality Bridge Rails, 53 pounds to the yard, to arrive, and for sale by A. & G. RALSTON,  
No. 4 South Front Street, Philadelphia.

Also, a 2-hand Locomotive Engine, of Baldwin's make, for sale low.  
September 8, 1847.

3137

### Suspension Aqueducts.

We learn that the Delaware and Hudson canal company are putting *suspension aqueducts* over the Delaware and Lackawanna rivers, for the passage of their canal. These aqueducts are to be on the plan of that for the Pennsylvania canal over the Allegheny at Pittsburg; and to be of sufficient capacity for boats to pass each other, with a depth of six feet of water. The piers and abutments are to be put up by the company, in the most substantial manner, and the trunk, with the suspension apparatus, will be put up by Mr. JOHN A. ROEBLING, who constructed the suspension aqueduct over the Allegheny, and the suspension bridge over the Monongahela, rivers, at Pittsburg.

To sustain the great body of water, suspension cables will be used, of 8½ inches diameter, manufactured by Mr. Roebling in the same manner as those used at Pittsburg; and these works, when completed, will do credit to the company, which has been singularly fortunate in the selection of able and faithful men for the construction and management of its important works; and thus it is that its stock is one of the very best in the market—or, rather, in the hands of capitalists—as it is too valuable to be often offered for sale.

### Great Western (Canada West) Railway Report.

We have before us the Report of CHARLES B. STUART, Esq., Chief Engineer of this very important work.

Mr. Stuart only commenced the surveys for location of this road early last Spring; yet, by the extraordinary efforts of himself and his able assistants, he has, according to his report, explored and surveyed nearly fifteen hundred miles of different lines—located 277½ miles—put 42 miles under contract, and advertised one hundred and fifty-nine miles more to be let on the 1st of October next. If Mr. Stuart has performed this service as well, as he has done it rapidly—and we doubt not he has—the company have indeed been fortunate in their selection of an engineer. It was supposed by some that the company would employ an engineer from England, as most of the stock is owned there: but we are of the opinion—and so seems the company to have been—that for a comparatively new country, and sparse population, with limited capital, an American engineer will be found the most profitable—or, rather, the least expensive; that is, they can accomplish a given amount of work, in a shorter period, and at

less expense, than those of almost any other country.

We shall re-publish the report nearly entire, with a map showing the connection of the Great Western railway with New York, Boston, Portland and Montreal, on the east, and the railroads through Michigan to Chicago and St. Louis, on the west—and possibly with the other map, showing "Canada West" with its subdivisions, if we can get it printed in time.

This road, it will be recollected, is to be connected with the Niagara Falls and Lockport railroad, by a Suspension Bridge, over the Niagara river at the Falls—thus giving the route an attractive feature, which no other road in the world can possibly have.

### Coal Trade of Pennsylvania.

From the following statement it appears that, up to 2d inst., the increase of coal sent to market this, over last, year is 347,463 tons. The increase this year will undoubtedly exceed 500,000 tons, showing a very rapid increase of demand. The editor of the Commercial List says "there is a steady demand for anthracite coal, and prices have advanced, owing to an advance on the 1st inst. of 10 cents per ton in the freight on the Reading railroad. Schuylkill white ash ranges from \$3 90 to \$4 05, and red ash \$4 05 to \$4 25 per ton. In Lehigh coal no changes. Three cargoes Allegheny bituminous coal sold at 20 cents per bushel.

The comparative supplies of coal sent to market have been—

	1846.	tons.	1847.	tons.
Lehigh canal, to Aug 25,	312,791	Aug. 24,	391,264	
Reading railroad,	27, 759,836		26, 848,506	
Schuylkill canal,	enlarging.		26, 128,210	
Del. and Hudson do.	15, 159,466		21, 211,576	
	1,232,093		1,579,556	
			1,232,093	

Increase in 1847,.....347,463

The probable supplies from these regions in all this year, with a favorable fall, will be—

By Reading railroad.....	1,300,000 tons.
By Schuylkill canal.....	200,000 "
By Lehigh canal.....	630,000 "
By Delaware and Hudson canal.....	410,000 "

Total.....2,540,000 "

Brought down by Reading railroad, week ending 2d instant, 34,548 tons. Total, since January 1st, 883,054 tons. Shipped by Lehigh canal week end-

ing 31st ult., 20,899 tons. Total this year, 411,164 tons. Shipped by Schuylkill canal, week ending 2d inst., 8,165 tons. Total this season, 136,375 tons.—Total shipments this year by Delaware and Hudson canal, 214,576 tons. Total supply this week, 63,612 tons. Total this year, 1,642,169 tons."

#### Copper Mine of Falun, in Sweden.

*Extracted from Rees' Cyclopaedia, article, Sweden.*

"Copper is found in various places in Sweden, but the chief mines of this metal, which are in the province of Dalecarlia, have been wrought from time immemorial. The metal is not found in veins, but in great masses, and does not extend more than an English mile in circumference. The matrix of the ore is the saxum of Linnaeus, or rock and pyrites of iron. The richest part of the ore has been supposed to yield 20 per cent. of copper; but as the poor and rich are blended, they average only 2 per cent. when brought from the mine, and 19 when smelted. The mine is private property, and is divided into shares, 1200 workmen are employed, viz: 600 miners, and the same number in roasting and smelting the ore above ground. The mouth or opening of the mine, says Mr. Cox, is extremely large, perhaps the largest in the world—being 1900 feet in diameter, or nearly three-quarters of an English mile in circumference; an immense chasm, gradually enlarged to its present size by the excavations and frequent downfalls of the rock. The perpendicular depth is 1020 feet."

The foregoing description of the celebrated copper mine in Sweden, has been sent to us by an esteemed friend, with the suggestion that its publication might—in these days of copper mining celebrity—be interesting to our readers; we therefore give it a place in the Journal—with the single remark, that we believe the time is not distant, when copper will be found in such abundance in this country, that its relative value, compared with silver and gold, will be such that pennies will be equal to quarter-pound weights—or, in other words, copper will be almost as cheap as lead and iron.—[Ed. R. R. J.]

#### The Iron Trade.

The average quotation for rails on the 13th August, was £9—in London, Welsh and Staffordshire firm, but Scotch pig is a shade lower, though stocks at Glasgow are reported as very small, and a large body of the men still remain out on the strike. In foreign iron and steel nothing new.

*Glasgow Pig Iron Trade, August 12.*—The price of pig iron has slightly declined since our last—caused, no doubt, by the tightness of the money market; were it not for this, iron would command high rates, as the stock has been greatly reduced lately, through the miners' strike, which still continues.—This week, mixed nos. changed hands to some extent, at 68s. and 67s. 6d., cash; there is very little iron offering. To-day the market is a shade firmer, we quote No. 3 at 67s., mixed nos. 68s., No. 1 69s. and 69s. 6d., cash, free on board.

#### Coal Trade.

We have been furnished with the following statement of the coal sent to market by the Schuylkill canal—which we shall publish as furnished weekly.

SCHUYLKILL NAVIGATION.—Week ending September 2d, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	6,845 09
Schuylkill Haven.....	1,319 18
Port Clinton.....	00 00

This week..... 8,165 07  
Previously..... 128,210 01

Total..... 136,375 08

#### Railroad Iron.

From the reports in the papers, which we understand to be correct, it appears that American railroad iron, to be delivered a year or two hence, has been contracted for at \$60 50 per ton, to be delivered on the line of the Central Pennsylvania railroad, by Messrs. DAVID REEVES & Co., of this city. It is said that they contemplate erecting a rolling mill for railroad iron, at, or near, Harrisburg, and thus save, to a great extent, the cost of transporting the coil, the pig and the manufactured article, as the road for which the iron is intended, is to be commenced at Harrisburg, and constructed westward, and thus becoming its own carrier of its own materials.

Harrisburg is an exceedingly favorable point for the manufacture of iron, as the coal and the pig iron can be got there as cheap as at almost any other place in the State; and the facilities for sending away the rails when manufactured, are, or soon will be, equal to those of any other central position.

In the materials for the construction of railroads, Pennsylvania is not surpassed even by England herself—and the time is not distant when those materials will be brought into use to an astonishing extent. The Central road once in operation, the people of Philadelphia will see, and feel, the importance of another line of railroad to Lake Erie, the great outlet of the west.

#### Railway Time Tables.

An engineer of Paris, named Ybry, says the Mining Journal, has taken out a patent for the construction of a time table in such manner, that by its means, the time necessary for the successive trains to perform the different parts of the journey, can be so regulated as to avoid each other; and the time of extraordinary or express trains, can be quickly laid down, so as not to interfere with the progress of the other trains. It will show at a glance the working of the different trains, giving immediately, without calculation, the time at which each train arrives at and departs from the various stations; the time at which it should be at any part of the journey, and the time that each train stops at each station. A parallelogram is drawn on a sheet of paper, with perpendicular lines, which represent the length of the line, and vertical lines representing time. Knowing the time a train starts, and the time it should arrive at its journey's end, and going an uniform pace, it is only to lay a T square from one hour in the top line to the arrival hour in the other, and the intermediate times and stations will be all seen at a glance.

#### Electricity in Leather Bands.

The London Mining Journal says that "In Dr. Silliman's American Journal there is a notice on the above subject, showing a property in leather which we think it is not generally known to possess. In examining the leather bands of a cotton mill, on the sea coast of the State of Maine, they were found to be highly excited. There are several hundred bands in the mill, and those which turn upon wooden drums or pulleys, whereby they are partially insulated, become highly charged. One fixed upon for making most of the experiments was 35 feet long, 9 inches wide, moving 1600 feet per minute, passing round two wooden drums, which revolve upon an iron shaft 180 times per minute; and in clear weather an electric spark may be taken on the knuckle held below the band at 17 inches distance; on presenting the end of the finger, the striking distance is 3 feet; the point of a black pencil shows a distinct brush 4 feet from the band, and a steel point becomes luminous at 7 feet. When the bands are in this

condition, the first processes of the cotton manufacture are attended with serious inconvenience; the fine filaments of the cotton repel each other, causing a deal of waste, and in several instances the whole 'drawing,' as it is termed, has been lifted from the machine to a band 4 feet above it. These difficulties have now been partially removed, by extending a conductor of wire to an iron steam pipe which passes through the rooms, and by emitting jets of steam near those bands that are most highly charged. By presenting a piece of leather 2 feet long, with one edge slightly curved, to the band, a succession of brilliant flashes and jets is immediately produced, giving a very perfect imitation of the aurora light. Other beautiful experiments were entered into, showing the favorable nature of the climate for the development of electricity, which, probably, at no season could be observed in this country."

#### Pennsylvania the Pioneer in Internal Improvements.

*The Coal and Iron Trade of Pennsylvania in 1847.*

We continue, in this number, this exceedingly useful and interesting production of Mr. Childs—even at the risk of being deemed *piratical*—as it furnishes a mass of information not conveniently got elsewhere, which should be more widely disseminated.

There are some remarkable facts given in that part relating more particularly to the "Iron Trade." In a somewhat lengthy table, is shown the variations of the price of English merchant bar iron in Liverpool, during a period of *forty-one years*, from 1806 to 1846, both inclusive. The lowest price was £4 10s., in June, 1843—and the highest price was in May, 1806, £17 10s. or a fall of nearly 4 to 1. It is also shown, that in 1803 the duty on bar iron was £4 4s. 4d., which was increased from time to time to £6 10s. in 1825, if imported in British ships, or £7 18s. 6d., if in foreign ships. If like causes produce like effects, and we may learn wisdom by experience, it would be well for our legislators to read this little pamphlet; as it appears that when the duties were increased the prices invariably declined, and when they were reduced the prices advanced. It was the settled policy, however, of the government, to impose high duties on iron, until her manufactories were apparently beyond the influence of competition. It is possible, however, and we think probable, also, that the time is not distant when we shall become their competitors in this, as we have in other branches of business.

In considering the advantages which Pennsylvania is to derive from her beds of iron ore, it would be pleasant, did our limits permit, to dwell on the wonderful application of this metal to the purposes of human life.—Still more interesting would it be to notice the rapidity with which the uses of iron multiply, in all parts of the civilized world, as human ingenuity extends its range, and increases the number of its devices. This increase in the use of iron, we suspect, is far beyond the conceptions of those who have not been led to pay particular attention to the subject. Among the important new applications, we may specify the iron vessels, the trial of which has been highly satisfactory; the iron roofs, iron fronts, iron buildings, and fire proof constructions in building, which are adopted to a wonderful extent in some portions of England, and will be very rapidly brought into use in this country; and the iron bridges, railings, vehicles, engines and



utensils, which are everywhere taking the place of the wooden predecessors. Under this head we may indeed place that greatest of all applications of iron—the railroad—because railroads are a comparative novelty in our country.

In 1765, there were shipped by sea from Philadelphia, 822 tons of bar iron, price £28 per ton; and 813 tons of pig iron, price £7 10s. Compare this statement with that given by Mr. Ellet, president of the Schuylkill Navigation company, in his late able report of the 4th instant:—"That the mere increase of the production of this metal, in the valley of the Schuylkill alone, during the last 18 months, exceeds the entire production of all the furnaces of Great Britain, 90 years ago!"

In tracing the history of Pennsylvania iron works, the earliest official information which we find, is contained in "A Statement of the Arts and Manufactures of the United States, prepared in execution of an instruction of ALBERT GALLATIN, Secretary of the Treasury—given by him in obedience to a resolution of Congress of the 19th of March, 1812." This document abounds in just and striking views of the true elements of national prosperity, views worthy of the able financier who was secretary of the treasury under that enlightened and illustrious president—James Madison. This work was prepared by Tench Coxe, Esq.

From this work we learn the number of furnaces in Pennsylvania in 1810, and the amount of their yearly products, as well as their location.

#### Number of Furnaces in Pennsylvania in 1810.

Locations.	Blast.	Air.	Product. tons.	Value.
Philadelphia co.,	0	2	820	\$71,000
Northampton,	1	0	300	10,500
Chester,	2	0	1,050	42,000
Lancaster,	4	0	4,200	135,400
Dauphin,	1	0	2,790	139,500
Berks,	10	0	4,142	165,760
Mifflin,	1	0	112	3,660
Cumberland,	1	0	2,900	125,000
Franklin,	2	0	1,381½	45,785
Huntingdon,	4	0	4,212	112,318
Fayette,	11	0	3,130	178,120
Westmoreland,	3	0	701	78,200
Beaver,	1	0	390	36,900
Butler,	1	0	350	17,500
Allegheny,	2	4	400	40,000
<b>Total,</b>	<b>44</b>	<b>6</b>	<b>26,878½</b>	<b>1,201,343</b>

In order to show the number of furnaces in the United States, and the quantity of pig iron manufactured by the same in 1810, we have made up the following table from the work above referred to:

#### Number of Furnaces and Yearly Product in 1810.

	Furnaces.			Products.	Value.
	Blast.	Air.	Total.	Tons.	
Maine,	2	2			uncertain.
Massachusetts,				2,340½	\$154,700
Vermont,	8	2	10	1,246	122,000
Rhode Island,	9	9		17	3,970
Connecticut,	8	8			46,180
New York,	11	10	21	3,559	362,020

New Jersey,	12	5	859	361,952
Pennsylvania,	44	6	50	26,878½
Maryland,	9	1	10	5,000
Virginia,	16	2	13	6,930½
Ohio,			3	1,187
Kentucky,	4	4	0	1,000
Tennessee,			6	587

**Total,** 88 44 154 53,908½ 2,981,277

The character of Philadelphia as a manufacturing city, had even then attracted attention. The document above mentioned makes the following statement, which, taken in connection with its date, is well worthy of special notice:—"The manufactures of the city of Philadelphia (within the strict charter limits of less than two square miles) containing on about 1100 acres of land, 53,722 persons, amount to \$9,347,767." So early, and before our anthracite coal was known, and when our iron trade was in its infancy, did Philadelphia assume the position (which she is destined yet to hold in most conspicuous and undeniable pre-eminence) of the great manufacturing city of the Union.

By a most remarkable arrangement of Providence, our State, in which such wonderful deposits of coal are found, is also bountifully supplied with iron ore. It is said that there are very few, if any counties, which do not possess some of the ores of this metal; but the proximity of beds of iron ore to the great coal fields, and the abundance of limestone in the same districts, are circumstances of great importance, and indicate clearly the great leading occupation of Pennsylvania. Already one-half of the iron produced in the Union, is produced in this State. The discovery, in 1840, of the method of using anthracite coal, in the reduction of iron ore, was of course the event which completed the full exhibition of our mineral wealth.

In order to show the vast expenditures of the State in furnishing facilities for bringing the iron of our mountains, as well as the coal to the seaboard, and also the trade of the west to this city, we copy the following official statement from a valuable document exhibiting the financial affairs of Pennsylvania, by W. Hammond, late chief clerk of the auditor general's office.

Railroads.	Length.	Cost.
Columbia,	82 miles.	\$4,204,969 96
Allegheny Portage,	36 "	1,828,461 35

**Total railways,** 118. " 6,033,431 31

Canals.	Length.	Cost.
Eastern Division,	43 miles.	\$1,736,599 42
Juniata "	130 "	3,521,412 21
Western "	105 "	3,069,877 38
Delaware "	60 "	1,381,741 96
Susquehanna div.,	39 "	896,379 52
North Branch "	73 "	1,580,670 87
West Branch "	72 "	1,808,472 10
French Creek "	45 "	795,801 74
Beaver "	25 "	511,671 19

**Total canals,** 592. " 15,302,526 39

Unfinished Improvements.	Cost.
North Branch Extension,	\$2,184,939 60
West " "	352,456 79
Erie " "	3,160,566 76

Wisconsin Feeder,	390,013 28
Allegheny " "	31,171 56
Gettysburgh railroad,	667,917 61
<b>Total,</b>	<b>7,087,065 60</b>

Recapitulation.	
Railroads finished, 118 miles.	\$6,033,431 31
Canals " 592 "	15,302,526 39
Canals unfinished, uncertain.	7,087,065 60
Locomotives and engines, cost,	473,919 97
Exploratory surveys,	111,375 83
Appraisers and canal board,	81,875 88

**Total cost,** \$29,090,294 98

After surveying this vast expenditure by the State of Pennsylvania, for the development of her own resources, let us call attention, by way of contrast, to the astonishing fact, that the sum of all the appropriations made by the United States government, for the construction and repair of roads, fortifications and harbors, and for the improvement of rivers, from 1806 to 1845, is only \$17,199,223! And then, when we come to add the cost of the improvements constructed in our State by private enterprise, and find the whole amounting up to ninety millions or more, how nobly does Pennsylvania appear, in comparison with even the federal government itself!

Great Britain is the country to which we must look for historical information in regard to the manufacture of iron. The iron trade of Great Britain may be taken as, in some measure, a prospective representation of our own. For this reason, accurate information respecting the progress and present extent of that trade, is of great value in this country; and we are happy to be able to lay before our readers information of such a character, which we have prepared from late important parliamentary documents, and other authentic sources.

The earliest iron works in Britain were in the Forest of Dean, where, says a quaint historian, "abundance of wood is yearly spent." In the reign of Elizabeth, the effect of the iron works in producing a scarcity of timber for ship building was felt; and in 1581, an act was passed requiring that, inasmuch as "the necessary provision of wood doth daily decay and become scant," no new iron works should be erected within twenty-two miles of London, nor within fourteen miles of the river Thames; and a subsequent act ordered that "no timber of the size of one foot at the stub, should be used as fuel at any iron work." In the reigns of James I. and Charles I., attempts were made to smelt iron with pit coals, but without success; and the iron works in many parts were stopped entirely, and in others diminished their operations.

About 1620, Edward Lord Dudley discovered a process for the use of pit coal, and obtained a patent. He erected a furnace, and succeeded in making seven tons of iron per week; but the mob destroyed his works, and defeated his plans, and it was a century before his process came into general use.

A historian writing in the reign of Charles II. says—"Very many measures of ironstone

ore are placed together under the great ten yards thickness of coal, and upon another thickness of coal two yards thick, not yet mentioned, called the bottom coal, or heathern coal, as if God had decreed the time when and how smiths should be supplied, and this island also, with iron; and most especially that this coal and iron stone should give the first and last occasion for the invention of making iron with pit coal." The same writer states that in the twelfth year of James I., there were in England, Scotland, Ireland and Wales, 800 furnaces, forges or iron mills, making iron with charcoal. Of these he reckons 300 to have been blast furnaces, each making 15 tons of pig iron per week, and some 20 tons, working forty weeks in the year; the forges make from three to six tons of bar iron per week.

For want of a supply of fuel, the quantity of iron manufactured in Great Britain steadily decreased, although the demand increased. Recourse was therefore had to foreign countries. From 1710 to 1718, the quantity imported from foreign countries annually, (being chiefly from Sweden and Spain) averaged about 17,000 tons, and the duty upon it about £35,000. As late as 1769, there were imported from Russia alone, 34,000 tons.

The following table shows the number of furnaces, and the make in each county, in the year 1740:

Counties.	Furnaces.	Tons.
Brecon,	2	600
Glamorganshire,	2	400
Carmarthenshire,	1	100
Denbighshire,	2	550
Monmouthshire,	2	900
Cheshire,	3	1,700
Herefordshire,	3	1,350
Gloucestershire,	6	2,850
Hampshire,	1	200
Kent,	4	400
Sussex,	10	1,400
Yorkshire,	6	1,400
Nottinghamshire,	1	200
Derbyshire,	4	800
Warwickshire,	2	700
Worcestershire,	2	700
Salop,	6	2,100
And Staffordshire, only	2	1,000

Total, 59 17,350

It appears, then, that the 300 furnaces before mentioned had now dwindled to 59, making 17,350 tons annually, or not quite 300 tons to each furnace.

In 1760, Mr. John Smeaton put in operation, at the Carron iron works, in Scotland, blowing cylinders, an invention which, by increasing the power of the blast, increased the production of the establishment using it.

In 1775, commenced a new period in the history of the iron manufacture. Mr. Watt's improved steam engine then came into use, for pumping water from the mines, and for blowing furnaces. In 1783, Mr. Cort obtained two patents, one for the process called puddling, and the other for rolling machines. These advantages led to a rapid increase in the manufacture of iron. In 1788 there were in England, Wales and Scotland,

Charcoal furnaces, 26 making 14,500 tons.  
Coke furnaces, 59 " 53,800 "

Total, 85 68,300 "

In 1796 there were, in all, 121 furnaces, making 125,079 tons. In 1806, an accurate return was made to parliament which showed the following result:

Coke furnaces, 222 making 250,406 tons.  
Charcoal furnaces, 11 " 7,800 "

Total, 233 258,206 "

In 1823 and 1830 returns were made which show a great increase, as compared with 1806.

	1823.	Furnaces.	Tons.	1830.	Furnaces.	Tons.
Staffordshire,	84	133,590	123	212,604		
Shropshire,	38	57,923	48	73,416		
Rest of England,	43	43,728	49	52,252		
Wales, exclusive of North Wales,	72	182,325	113	277,642		
Scotland,	22	24,500	27	37,500		

Total, 259 442,066 300 653,416

Let us now bring these statistics of progress into one table:

1740 furnaces	50	make	17,350 tons.
1788 " "	85	"	68,300 "
1796 " "	121	"	125,079 "
1806 " "	233	"	258,206 "
1823 " "	259	"	442,066 "
1830 " "	260	"	653,416 "
1839 " "	378	"	1,347,790 "
1841 not stated.	"	"	1,387,551 "

It is estimated that the annual manufacture of iron in Great Britain has now reached two millions of tons. In Scotland the manufacture was found to have trebled in six years prior to 1845. At the beginning of June, 1846, there were in blast in Scotland, 95 furnaces; out of blast, 35—making a total of 130. The furnaces in blast at that time produced an average of 110 tons per week each, or at the rate of 543,400 tons a year for all.

The quantity of iron imported into Great Britain in 1839, was 24,360 tons; the most of which came from Sweden.

The British duties on foreign bar iron have been as follows:

	£	s.	d.	
1782,	2	16	2	per ton.
1797,	3	4	7	"
1802,	3	15	5	"
1805,	5	1	0	"
1806,	5	7	5 1/2	"
1809,	5	9	10	"
1813,	6	9	10	"
1819,	6	10	0	" If im-

port in British ships, and if in foreign do., 7 18 6 per ton.

In 1825 the duty on foreign bar iron was reduced to £1 10s.

It cannot be doubted that the high duties imposed for so long a period on foreign iron had a great influence in promoting the iron manufacture in Great Britain. Exertion was called forth, and ingenuity was stimulated, until this department of business acquired a strength which enabled it to stand against

\* Exclusive of North Wales, which for 1823 is estimated at 10,000 tons, and for 1830 at 25,000 tons.

the world. When this position had been attained, and the iron manufacture had risen, under the fostering care of the government, to a point at which it could defy all competition, the restrictive duties were materially reduced.

The hot blast, (one of the most important inventions in the history of the iron manufacture) was first suggested in 1829, by Mr. Neilson, of Glasgow, who took out a patent. This discovery, being found of greater value in Scotland than in England, on account of some peculiarity in the Scotch coal, greatly increased the iron manufacture of that country. A Scotch manufacturer, in writing on the subject, pronounces the hot blast "one of the greatest discoveries in metallurgy of the present age."

In 1838, Mr. Crane, an ironmaster in South Wales, made known to the British Association, that he had succeeded in applying the hot blast to the anthracite coal with complete success! This step in the progress of discovery, opened a new world in Pennsylvania. The news of it made known the great design of our vast anthracite coal deposits.

In connection with the account of the British iron trade, we give the following statement, (which those who are familiar with this subject will regard as a very important one) of the prices of merchant bar iron in Liverpool, for a period of forty-one consecutive years. We invite special attention to this table. It reveals some facts which the advocates of free trade must acknowledge to be remarkable, and for which they may find it difficult to account. It appears that as the duties advanced, prices of iron declined; and that this sequence was invariable. When the manufacture became extensive and independent, the duties were reduced, and prices materially advanced, until they are now nearly double what they were when the duties were at the highest point.

An Account of the Selling Price of English Merchant Bar Iron in Liverpool, from the year 1806 to 1846, both inclusive, as furnished by Messrs. Jevons, Sons & Co.

Year.	Month.	Price per ton.	Year.	Month.	Price per ton.
		£ s. d.			£ s. d.
1806—May,		17 10 0		June,	12 0 0
July,		17 0 0		December	13 0 0
Novem.,		16 0 0	1814—February,		13 10 0
1807—February,		17 0 0	March,		13 0 0
March,		16 10 0	April,		13 10 0
July,		16 0 0	May,		14 0 0
August,		15 10 0	June,		13 15 0
Septem.,		15 0 0	August,		13 10 0
1808—Septem.,		14 10 0	Novem.,		13 5 0
1809—January,		15 10 0	1815—February,		13 10 0
February,		16 0 0	May,		13 0 0
March,		15 0 0	June,		12 10 0
Septem.,		14 10 0	do. 30,		12 0 0
October,		14 5 0	July,		11 10 0
1810—January,		14 10 0	August,		11 0 0
June,		14 5 0	December		11 10 0
Septem.,		14 0 0	1816—March,		11 0 0
October,		15 0 0	April,		10 15 0
1811—August,		14 10 0	June,		10 10 0
Septem.,		14 0 0	July,		10 0 0
1812—May,		13 13 0	July,		9 15 0
June,		13 5 0	August,		9 10 0
July,		13 10 0	October,		9 0 0
Oct. 1st,		13 5 0	do.,		8 15 0
do. 22d,		12 15 0	1817—February,		8 10 0
December		13 0 0	March,		9 10 0
1813—February,		12 10 0	July,		10 10 0
April,		12 5 0	August,		10 0 0



October, 13 00	October, 7 15 0
1818—February, 12 15 0	1834—April, 7 12 6
April, 11 15 0	May, 7 0 0
May, 11 5 0	August, 6 12 6
June, 10 15 0	September, 6 10 0
August, 10 0 0	1835—February, 6 7 6
Septem., 11 10 0	March, 6 10 0
December, 12 10 0	June, 6 7 6
1819—May, 11 10 0	August 1st, 6 5 0
June, 11 0 0	do. 31st, 6 10 0
1820—March, 10 10 0	Sept. 16th, 7 0 0
June, 9 10 0	October 1st, 7 10 0
1821—January, 9 0 0	Nov. 30th, 8 0 0
February, 8 15 0	Dec. 8th, 8 5 0
March, 9 10 0	1836—January, 10 10 0
June, 8 15 0	April 26, 11 10 0
August, 8 10 0	July, 11 5 0
1822—January, 8 0 0	October, 11 0 0
June, 8 10 0	Novem., 10 15 0
1823—July, 8 0 0	December, 10 10 0
November, 8 10 0	1837—February, 10 5 0
1824—January, 8 15 0	March, 9 15 0
July, 9 15 0	May, 9 0 0
Septem., 10 0 0	June, 8 10 0
Oct. 4, 11 0 0	July, 7 5 0
do. 18th, 11 10 0	August, 6 15 0
do. 23d, 13 0 0	do. 15th, 7 5 0
Nov. 24th, 12 10 0	do. 19th, 8 0 0
December, 13 0 0	do. 31st, 8 15 0
1825—January, 14 0 0	September, 9 10 0
February, 15 0 0	December, 9 15 0
March, 14 10 0	1838—January, 9 10 0
April, 14 0 0	December, 9 15 0
August, 13 0 0	1839—January, 10 5 0
do. 12 10 0	May, 10 0 0
Septem., 11 10 0	June, 9 15 0
1826—January, 11 0 0	September, 9 10 0
April, 10 10 0	1840—January, 9 0 0
May, 9 10 0	December, 8 0 0
October, 10 0 0	1841—April, 7 15 0
1827—March, 9 10 0	1842—January, 6 10 0
April, 8 15 0	December, 5 5 0
July, 9 10 0	1843—April, 5 0 0
December, 9 5 0	June, 4 10 0
1828—January, 9 0 0	1844—January, 5 0 0
March, 8 15 0	April 15th, 5 10 0
April, 8 10 0	May 1st, 6 0 0
do. 25th, 8 5 0	Oct. 3d, 5 10 0
May, 8 0 0	Dec. 3d, 5 15 0
October, 8 5 0	do. 20th, 6 0 0
December, 7 15 0	1845—January 2, 6 10 0
1829—April, 7 10 0	Feb. 3d, 7 10 0
June, 7 5 0	March 3d, 9 0 0
August, 7 0 0	do. 28th, 10 0 0
October, 6 15 0	May 3, 9 10 0
December, 6 12 0	do. 19th, 9 0 0
1830—March, 6 10 0	June 3d, 8 10 0
June, 6 15 0	August 4th, 7 15 0
October, 6 10 0	Sept. 3d, 8 0 0
November, 6 5 0	do. 18th, 8 5 0
1831—May, 6 2 6	do. 28th, 8 15 0
June, 6 0 0	Nov. 4th, 9 0 0
October, 5 17 6	1846—January, 9 0 0
December, 6 5 0	February, 9 5 0
1832—May, 5 15 0	April, 9 0 0
August, 5 10 0	May, 8 15 0
November, 5 15 0	June, 8 10 0
December, 6 5 0	July, 8 15 0
1833—February, 6 15 0	August, 9 0 0
April, 7 0 0	October, 9 2 6
September, 7 5 0	December, 9 5 0

*The following Duties were imposed upon Foreign Iron imported into Great Britain in*

1803, on foreign bars, £4 4s. 4d. per ton.	
1804, " " 4 17 1 "	
1805, " " 5 1 0 "	
1806 to 1808, " 5 7 5½ "	
1809 to 1812, " 5 9 10 "	
1813 to 1818, " 6 9 10 "	
1819 to 1825, " 6 10 0 "	If
imported in British ships,	
If in foreign ships, 7 18 6 per ton.	

In 1825, Mr. Herries, Chancellor of the Exchequer, proposed a considerable reduction of the duties on forge iron. Mr. Huskisson, President of the Board of Trade, offered the

resolutions for these alterations, which were carried, and the following duties fixed on the 5th January, 1825:

	Old duty.	Present duty.
Iron, in bars or unwrought		
per ton, the produce of any British possession,		
& imported from thence, £1 2 2 £0 2 6		
In bars or unwrought, the produce of any other country, per ton,	6 10 0	1 10 0

Before entering upon the Pennsylvania iron trade, we will give place to some miscellaneous information of an interesting, and perhaps curious description, respecting the iron trade of Russia, Sweden, Spain, etc.—which must be new to most of our readers. The works of Scrivenor, and other writers, from which we derive these notices, have been accessible to very few, even among our ironmasters; and we think that the information thus furnished will be highly acceptable in a community so deeply interested in every thing connected with iron and its manufacture.

In Russia, iron ores have been known from time immemorial, but we have no information respecting mining operations in early periods. In 1569, the English obtained, by treaty, the privilege of seeking for and smelting iron ore, on condition that they should teach the Russians the art of working this metal, and pay, on the exportation of every pound, one half penny. Peter the Great himself wrought in the iron works, before he set out, in 1698, on his first journey into foreign countries. Remaining some time in Saxony, he not only made himself acquainted with the arts of mining, but requested the king of Poland to give him some workmen, and in the following year twelve were obtained. In 1719, Lieut. Col. Henning, by order of the emperor, travelled through several countries of Europe, to collect information respecting mines and foundries, and on his return, wire manufactories, forges for steel, etc., were set up.

All iron works erected with the assistance of the crown pay a tax of about six cents on each pood of raw iron, and those without that assistance about four cents. The pood is 36 English pounds. For every forge the owner pays the crown 200 rubles yearly, or about \$184.

The number of people employed in some of the iron works in Russia is astonishing. At the crown mines of Barnaul 48,000 boors are employed. The iron works of the Stroganof family have about them and on the district belonging to the family, 83,000 vassals of the male sex! Many of the private works give rise to villages, which are in size and population like our cities. The Barnaul mines afford some ore which yields from 50 to 60 per cent. of iron. But 25 per cent. is more common. The exports of iron from all the ports of Russia except those of the Caspian, in 1793, were,

	Poods.	Value in rubles.
Bar iron,	2,503,757	4,258,228
Sorted,	491,575	901,464
Cast ironware,	37,917	44,433

The ruble is 3s. 1d. sterling, and is divided into 100 copees.

In 1828 there were in the Russian dominions, 19 foundries, forges and mines belonging to the crown, and 148 establishments belonging to private families. The exports of bar iron from St. Petersburg to America were as follows in the years specified:

1783, poods 6,615	1794, poods 256,635
1785, " 38,618	1797, " 112,260
1792, " 132,380	1804, " 278,264

The exportation of iron from Russia has been upon the decline since 1784.

In 1832 there were exported to the United States, 803,508 poods of bar iron, and in

	Bar.	Sheet.
1833, 504,750 poods.	64,234 poods.	
1834, 345,080 "	13,186 "	
1837, 262,000 "	40,000 "	
1838, 270,000 "	36,593 "	

Sweden has long been celebrated for its iron. In 1740 there were 496 foundries for making bar iron and other iron manufacturer, which produced 40,600 tons. In that year the government established an office to promote the production of iron, by lending money on the ore, even at so low a rate as 4 per ct.

In 1833 there were in Sweden from 330 to 340 smelting furnaces, producing about 90,000 tons of pig iron. The smelting furnaces are licensed for a particular quantity. These licenses are granted by the College of Mines, which has a control over all the iron works and mining operations. The ironmasters make annual returns of their manufacture, which must not exceed their privilege; on pain of the overplus being confiscated.

The iron mine of Dannemora is the most celebrated in Sweden. It has been wrought for four centuries, and still yields abundance of the best iron in Europe. It was first wrought as a silver mine. The annual yield of this mine is about 4000 tons, the whole of which is sent to the house of Messrs. Sykes, in Hull, England, where it is known by the name of the Oreground iron, taking its name from the port at which it is shipped. The first or best mark is L, which sells at £40 per ton; while the best Russian mark, the C. C. N. D., is seldom higher than £20 per ton.

The cause of the superiority of the Dannemora iron has never been explained. Some chemists ascribe it to the presence of manganese. Berzelius attributed it to the presence of the metal of Silicia, while others suppose it to arise from the nature of the process employed.

The exports of iron from Sweden to the U. States from 1830 to 1838 were as follows:

	Bars.	Other iron.
1830,	15,532	422
1831,	23,133	683
1832,	20,002	1,222
1833,	20,644	343
1834,	19,618	287
1835,	28,728	476
1836,	27,342	560
1837,	10,709	151
1838,	25,660	585

The total exports in 1838 were 81,754 tons. Spain has iron of excellent quality. It is probably more ductile than any other. But

Spain has never manufactured to any great extent.

An ancient writer (Diodorus Siculus) says—"The Celterberians make weapons and darts in an admirable manner; for they bury plates of iron so long under ground, until the rust hath consumed the weaker part, and so the rest becomes more strong and firm. Of this they make swords and other warlike weapons, and with these arms thus tempered, they so cut through everything in their way, that neither shield, helmet or bone can withstand them."

The quantity of iron sent from Spain to Great Britain from 1711 to 1718, averaged 1560 tons annually. From 1729 to 1735 the average was 1770 tons. After about 1750, the exportation declined, and in 1795 ceased entirely. No iron comes to the United States from Spain.

**Improvement in Steel.**—An eminent London cutlet, Mr. Weiss, has remarked that steel seemed to be much improved when it had become rusty in the earth, and provided the rust was not factitiously produced by the application of acids. He accordingly buried some razor blades for nearly three years, and the result fully corresponded to his expectation. Analogy led to the conclusion that the same might hold good with respect to iron, under similar circumstances. So with perfect confidence in the justness of his views, he purchased, as soon as opportunity offered, all the iron, amounting to 15 tons, with which the piles of the London bridge had been shod. A part of this iron had become extremely and beautifully sonorous, and possessed a degree of toughness quite unapproached by common iron, and was indeed a perfect carburet. It produced steel of a quality infinitely superior to any with which, in the course of his business, Mr. Weiss had met; inasmuch that, while it was in general request among the workmen for tools, they demanded higher wages for working it. About eight tons of the iron was found to be of this quality.—The remainder was inferior, in consequence, as was supposed, of its having been less favorably subjected to the action of the agent producing the change.

To be Continued.

#### **Schuylkill Navigation Company.**

Continued from page 565.

#### **Canal Navigation, and the Improvements of which it is Susceptible.**

A great issue is now to be tried, for the determination of the relative merits of canals and railroads, in the transportation of an almost unlimited amount of heavy freight.

This question has been satisfactorily solved on other lines, in this and in other countries; but the results of experience have been frequently concealed by interest, and there are still those who claim a superiority for the railway in the economical transportation of every description of freight. And popular opinion, at the same time, regarding the railway as an improving machine, destined always to exhibit still happier results, and assuming that canals are, and are forever to remain stationary, has almost anticipated by its decision the result of future contests.

It is not the intention of this Board to underrate the value of the railway system, or to depreciate the visible benefits which it is conferring upon the human race. They are happy to participate in its multiplied advantages, and to witness its influence on the destiny of the world; and they rejoice at the extension of an improvement which is rapidly spreading the bounds of commerce and the area of civilization.

But they must contest the assumption that canals have already reached the limit of possible improvement, and are henceforth to remain stationary.

It is true that the efforts of genius, and the application of unlimited capital, have produced astonishing results on the great lines of modern railways, both in Europe and America; while proprietors of the early canals, discouraged by previous losses, have hesitated to venture more in enterprises of doubtful success, or contented with their ample dividends, have rested satisfied with the imperfect works that yielded them.

The line of railroad from Liverpool to London, 212 miles in length, has cost more than \$230,000 per mile, or altogether about \$50,000,000.

Was it not to be reasonably supposed that such an expenditure of capital, under the guidance of skilful engineers, made in a rich and populous country, and in a highly cultivated age, would produce remarkable results, and seriously impair the profits of a line of adjacent canals of different dimensions, having locks of different lengths and breadths, and all controlled by separate and distinct interests?

These, and most other European canals, were built at an early day, in the infancy of the art, and in the early age of the history of such corporations, before success had shown as in recent times, the power of concentrated capital, controlled by chartered institutions. They are, accordingly, in the lowest degree, imperfect; but yet, imperfect as they are, and impaired as their revenues have been by the loss of their monopoly, they still convey merchandise cheaper, and yield more liberal profits, than the most successful of the railways that now cope with them, or, indeed, the most productive railways in the world.

But let us now suppose that these primitive canals were entirely erased, and their whole trade transferred to the incomparable railways that divide it with them; that in this state of things, a capital of \$50,000,000 were commanded for the construction of such a water communication as might now be made from Liverpool, through Birmingham, to London—a canal 7 or 8 feet deep, and 120 feet wide—walled in from end to end, and completely protected from the waves of steamers—with locks 25 or 26 feet in width, and 300 or 400 feet in length, so arranged with gates as to pass through either a single boat or a steam tug and a train of boats.

Such a canal would accommodate nearly all the light coasting trade of Great Britain; it would pass vessels trading not only between the cities on the route, but it would accommodate the commerce of Ireland; take the

coal and iron from the interior to the sea board, and to the continent, without breaking bulk; admit of towing by steam tugs, with trains of a thousand tons, and be open to the use of steam passenger boats, capable of making a speed of 15 miles per hour.

Such a canal as this would correspond with modern ambition and enterprise, and be somewhat proportioned to the demands of modern commerce.

The ancient canals of England were adapted to the condition of England in a former century, and squared with the views and thoughts of an antecedent age.

Now, it may be fairly put to the common sense of every one to say, whether such a work as is here set forth, established in the present age of art, with all the resources of modern skill, would not show, when compared with the narrow, shallow, irregular and crooked ditches, accommodating boats of twenty tons, drawn by horses, which now successfully compete for heavy freight, with the noblest specimens of railway in the world; that canals also are susceptible of improvement, and may be improved to any extent that the capital supplied may contemplate.

Although the Schuylkill navigation, in its present condition, falls short of the work which we have here shadowed out, it is, nevertheless, a work which has been so constructed that it may be brought, from year to year, by a system of judicious repairs and improvements, gradually to approach this state of perfection.

It is, withal, a canal destined for more important traffic, than the midland and light coasting trade of England, and one on which steam may be immediately applied with much success, and on which it will ultimately be applied, almost to the exclusion of all other power.

The views of the Board in the execution of this work have not extended so far, but have been confined, for the time, to the wants of the trade as it is, as well as by considerations of present expediency and economy.

Still, in the reconstruction of this improvement, the application of steam as a moving power, has been kept constantly in view; and it ought, in their opinion, to continue to be the aim of the Board, and, of those on whom the management of the interests of the corporation is hereafter to devolve, to perfect those arrangements. Every dollar expended in future constructions or repairs, should be laid out with an eye to this ultimate object.

The application of steam with good effect, requires, first of all, a wide and deep channel. The mass of water driven forward by the boat, should have ample room to spread, and return into the wake, with the least possible reflux motion.

The velocity of this reflux current, depends on the speed of the boat, and the relation between its cross section and that of the channel. If the boat nearly fill the channel, the water is necessarily forced back, under the pressure of a high head, and with a speed due to that head. The speed of this reflux wave is a current to be stemmed; and the speed of this current is abstracted from the



velocity of the boat due to the action of the engine.

The only means of obtaining relief from this impediment to the application of steam, is to enlarge the channel; and this has been effectually accomplished over the greater part of the line of the Schuylkill navigation.

The whole length of the canal part of this improvement, is about 50 miles, which is composed as follows:—

The distance of which the width is less than 50 feet is.....	2½ miles.
The distance exceeding 50 feet, and less than 60 feet is.....	13½ "
The distance exceeding 60 feet, and less than 70 feet is.....	21 "
The distance exceeding 70 feet, and less than 80 feet is.....	41 "
The distance exceeding 80 feet, and less than 100 feet is.....	10½ "
The distance exceeding 100 feet, and less than 300 feet is.....	6½ "
The distance consisting of open river is.....	50 "

Distance from Fairmount to Port Carbon... 108½ miles.

Numerous experiments have been tried with a view to the introduction of steam, on many canals in this and other countries; but these have almost uniformly failed, and failed from the same cause—the want of sufficient breadth and depth of channel, in the first place, and the adoption of locks of too contracted dimensions, where the size of the channel itself may have been sufficient.

Almost any one of these unsuccessful boats, if it have the principles of motion within it, placed on the Schuylkill navigation in its present state, will yield satisfactory results, and surprise its disappointed projector.

Nevertheless, it is to be borne in mind, that although the first great step, of opening a capacious canal, and a set of excellent locks, has been accomplished, there is still a wide career of improvement before this company.

The navigation, in its present state, is adapted to the economical conveyance of the present trade—the actual cost of transporting which it should reduce more than one-half; but the trade is now increasing beyond all past example, and will very speedily exceed the capacity of all the present means of conveyance. If the peace of the country be not seriously disturbed, it appears more than probable, that all the lines now leading from the anthracite district to tide water, will soon be found inadequate, in their present condition, to vent the produce of the mines, or supply the increasing demand for coal required by the enterprise of the age, and the activity of commerce.

If we take the production of 1829—the first year in which the trade exceeded 100,000 tons—and add to that quantity 20 per cent, and so continue on from year to year, compounding at the rate of 20 per cent., although the results produced will not correctly represent the trade of each year, they will exhibit correctly the production of 1840, 1842, and 1845, and show that the average increase for the last 17 years has been, and that the present increase continues to be, at the rate of 20 per cent. each year, upon the aggregate production of the previous year.

The same rule applied to the future, will show for the increase of—

1846,	-	-	405,000
1847,	-	-	485,000
1848,	-	-	580,000
1849,	-	-	700,000
1850,	-	-	840,000

and for the aggregate trade of 1850, nearly 5 000,000 tons.

It is not maintained that this law is hereafter to prevail—for it is not permitted to men to see far into the future—but it is impossible to contemplate the causes now at work, and which are henceforth to contribute to the increase of this trade, and contend for a lower rate than that which correctly represents the past.

The coal and iron trade of Great Britain are essentially the growth of the last sixty years. They have sprung into existence since the introduction of canals, railways, and steam engines; and during a part of that period, the average increase of the coal trade, appears to have been not less than a million of tons per annum. But the advancement of Great Britain in wealth and prosperity, although it has far exceeded that of other trans-atlantic states, has never approached the marvellous strides of this young and prosperous country.

The fact is, that for three successive periods of five years, the anthracite trade of this state has increased at the rate of more than two and-a-quarter fold for each period; and if it continue so to increase during the succeeding five years, reckoned from the close of 1845, the aggregate production in 1850 will not fall much below five millions of tons. (See note 2.)

If this estimate of the future trade, based as it is, upon the past and present, be well founded, there will be an accession to the aggregate production of anthracite in the five years intervening between the close of 1845 and that of 1850, of some three millions of tons; and without meaning to underrate the claims of neighboring districts, it is the opinion of the Board that the country must look to the unrivalled facilities of the Schuylkill, and their boundless capacity for development, to furnish a very large proportion of this quantity.

We have, then—foreseeing our advantages, and the demands which are to be made on them—to prepare diligently for the accommodation of this business; and we must be on the alert, if we hope to keep up with the expansion of the wealth, industry, and consumption of the country.

The navigation, in the condition in which it will be placed on the opening of the spring trade, will be adequate, when fully supplied with boats, to the convenient transit of a million and a half of tons.

Much more can be passed, but this is probably as large a quantity as it would be judicious to force through a set of single locks.

But when a single lock is no longer sufficient, another may be placed along side of it, as has already been done on this canal in its former state.

A double set of large locks, whenever the trade is sufficient to justify their construction, will greatly facilitate and reduce the cost of

conveyance by steam. The steam tug may then enter one chamber, and its tow the adjacent lock, and both may be passed through together. Here will occur a vast saving of time and expense, when 350 tons may be passed onward more expeditiously, and for almost the same cost per mile as 60 tons in 1845.

The line may even now be worked in this way with much facility and economy. One set of the old locks having been generally preserved, steam tugs adapted to their size, but with sufficient power to convey tows of the largest class, may be used in the New York trade with entire success. The tug, with 60 tons aboard, can be passed through the small locks, while the tow, with 180 tons, is descending by the larger chamber.

But even a double set of large locks, though capable of passing some three millions of tons per annum, will scarcely be sufficient, from present appearances, and past results, to vent the trade which must be borne upon this work six or eight years hence, and a further expedient must then be resorted to.

Each of the double locks will, ultimately, have to be doubled lengthwise, so that a steam tug and its tender may enter together into the same chamber, lengthened out, and be locked through together as a single boat.

This is probably the highest degree of perfection of which canal navigation is susceptible; an arrangement which presents a channel of ample width and depth, provided with a set of well proportioned double locks, each doubled or trebled lengthwise, capable of navigation by steam tugs, with one or more boats in tow, and of passing the whole train through the locks with no greater delay than the ordinary detention of passing a single boat.

There is scarcely a limit to the capacity of a canal, well supplied with water, for the transmission of freight in this manner, or to the economy of transportation which such a work will authorize.

Five millions of tons may be passed along an improvement of this character, with no greater embarrassment from lockage than was experienced in 1841 in passing 700,000 tons.

The apprehensions entertained by some, that the supply of water will be inadequate, are not well grounded. The only deficiency in the ordinary flow of the rivers is of limited duration, confined usually to two, or at furthest three months, in the summer and autumn. To meet this contingency, the company have secured reservoir sites which, when improved, will enable them to furnish water, in addition to the ordinary flow of the river, capable of passing from seven hundred thousand to a million of tons, during the season of prevailing drought; and therefore capable of maintaining as great a trade as this company need ever wish to accommodate. These reservoir sites are all admirably located for the purpose, and were selected after careful and extensive surveys, continued through several months, by a competent engineer.

There are many other sites which may be improved, when the necessity for further accommodation approaches. The purchases so

far authorized by the Board have been confined to the few most eligible positions for the purpose.

With an ample supply of water, there is nothing to prevent the consummation of the plan here presented for the ultimate perfection of this work.

It is the enviable fortune of the stockholders of the Schuylkill navigation company to occupy the only position in this country where such an improvement will be soon needed, and to have the ground work of such an improvement already laid, so that, whenever the warning of an overwhelming trade shall call for its development, they may use the surplus means which that trade will furnish, to complete the design.

In the meantime, let it be clearly understood, it is regarded as the true policy of the company, to engage only so far in these ulterior improvements, as may be required in making necessary repairs, or by the pressure of the trade itself, which will always provide for its own accommodation. A resort to the company's credit for the purpose of improvement, beyond what is necessary for the completion of the works in actual progress, is not contemplated, and it is believed will never again be needed.

#### *Of the Facilities now Required by the Trade.*

A great revolution has been effected in the coal trade during the last few years, and a still greater is now impending.

During the past year, a work has been constructed which will enable the number of men and horses needed in 1845 to transport 60 tons to market, to take 180 tons, at about the same expense of time, and for but little more than the same expense in money. This is a great stride, which in a single season reduces the cost of freight more than one-half.

But there are inconveniences and embarrassments to which the trade has been long exposed, and the removal of which calls for all the influence this company is capable of exerting.

These embarrassments consists in the unnecessary and vexatious delays to which the boatmen are subject, from the time they reach the landings in the coal region—for want of adequate facilities there—to that of delivering the cargo in New York, or Albany, and at every other point on the route, where a steam tug, or a change of towage is required.

It is true that the increased cost of coal consequent on these delays will be one-half less per ton with the large boats, than it was formerly with the old ones. But still, they are serious drawbacks on the trade, and on the company's prosperity, and call for due exertion to procure their dissipation.

The actual cost of transporting coal by the large class of boats, including hire of the boats, and wages and food of men and horses, will be nearly *four cents per ton per diem* during the time that the boat is manned and equipped, whether it be actually in motion or at rest.

If the voyage to any point and back again to the coal region consume ten days, the cost of freight will be very nearly 40 cents a ton.

But if the voyage which ought to be made

in ten days, in consequence of unnecessary delays and impediments, actually consume fifteen days, the cost of freight will be enhanced about 20 cents a ton, or raised from 40 to 60 cents.

It is the intention, as it is the duty of the Board, as far as lies in their power, to remove all causes of delay not necessarily incident to the trade, and endeavor to smooth the way to the most expeditious and economical mode of conducting the vast traffic which it appears to be the destiny of this improvement to accommodate.

The first step towards carrying out this intention, is obviously the preparation of suitable landings, for transferring the coal with the least possible loss of time and labor, from the cars to the boats. This work is now in progress, and will be urged forward with the utmost rapidity.

To keep the levels well filled, so that the boats may be fully loaded, and to give proper despatch in passing the locks, require a vigilant administration of the line, which it is for the Board to enforce.

Next in importance, is regarded the provision of an efficient system of towage between the Schuylkill and the Delaware, by means of which all boats seeking the work may be passed up and down with little delay, and at the least possible cost, and all vessels trading on the Schuylkill may meet with prompt towage, at low rates.

After reaching the Delaware, the boats can no longer be considered under the eye or control of the company. But it is important, nevertheless, that means should be found to expedite the transit between this city and New York, where the trade meets with numerous and most unnecessary embarrassments.

Finally, it is the hope that by means of proper encouragements—possibly by allowing drawbacks, or abatements of toll in favor of those who make quick trips—a motive may be given to induce despatch at the wharves of New York, and other ports accessible to the Schuylkill boats, where the greatest detention now has place.

The importance of such efforts will be apparent from the fact, that a trip from Pottsville to New York, and back again, which ought to be made in about 12 days, and at a cost, exclusive of toll and towage, of 50 cents a ton, would actually require, according to old experience, 18 or 20 days, and cost, with the new boats, 75 cents a ton.

Taking former experience as a guide, and allowing the usual charges for toll and towage to the Delaware and Raritan canal company, the actual cost of freight from Pottsville to New York, with an adequate supply of large boats, will be about \$1 35 a ton.

This is a great reduction from the prevailing rates of former years; yet by improved arrangements, and holding out strong inducements for despatch, it is hoped materially to reduce this cost, and give greater margin for profits to the boatmen, and further development to the trade.

We have already alluded to the indications which past experience afford of the probable

future consumption of coal in this country. The subject is of primary interest, and we may, therefore, venture still to add some reflections upon the causes which are now at work to extend this consumption.

In estimating the probable growth of this trade, we must, to some extent, endeavor to free our minds from the shackles of old opinions, and the influence of ancient example. We must learn to feel the truth, that we live in an age which bears little resemblance to the past, and the progress of which cannot be safely judged by the history of the past.

This is essentially the age of commerce and of steam—the foundations of which are our coal mines.

In the machine shop and factory—on the railroad and canal—on the rivers and the ocean—it is steam that is henceforth to perform the labor, overcome resistance, and vanquish space. And it is not for human intellect to assign a limit to the application of this power, in a country like that which it is our fortunate lot to inhabit—intersected by noble rivers, and penetrated by numerous bays—with an extensive sea board, lined by flourishing cities, and possessing, along with boundless enterprise, all the elements of national wealth.

But, look where we will, the evidence of the truth that we live in an age of which the progress is not to be measured by examples from the history of the past, is prominent before us.

Taking the iron trade as an example, we find that the mere increase of the production of this metal, in the valley of the Schuylkill alone, during the past 18 months, exceeds the entire production of all the furnaces of Great Britain 90 years ago. The manufacture of cotton in Great Britain, which has increased about one hundred fold in the last 70 years, and of the same, and many other articles, as well in Europe as in this country, exhibits results almost equally striking.

There was, in fact, no appreciable iron trade, and, indeed, but little trade at all, in the present ordinary use of that word, anterior to the introduction of the steam engine—an instrument of power, deriving its efficiency almost entirely from coal, which, through its agency, has given birth to modern commerce, to modern enterprise, and a mighty impulse, too, to modern civilization.

A quarter of a century ago—within the memory of almost all here present—those magnificent boats which now give life to the Delaware and Hudson—the seven or eight hundred which traverse the Mississippi—and the thousand which circulate on other waters of this country, had no existence, except, perhaps, in the imaginations of those who were then considered wild and visionary enthusiasts. Now every year brings forth new specimens, each in its turn regarded as the noblest creation of bold invention, and each week presents some new enterprise, by which the Atlantic cities are brought into closer connection with each other, and with foreign ports.

The use of this power on the ocean has but just commenced, yet enough has already



been accomplished to point to an approaching revolution in the coasting trade and foreign commerce of all countries. The next year promises to witness new lines of ocean steamers, connecting this country with England, France, Germany, South America, and traversing the coast from New York to New Orleans.

A quarter of a century ago, and there were not more than a thousand tons of anthracite annually raised and exported in all this Union; now the increase alone is more than a thousand tons per diem, and compounding rapidly upon that.

But still we can form no accurate estimate of the future increase from the past. New elements are daily introduced in the problem, of which no human intellect can determine the value.

The introduction and extension of the railway system over all Europe, and even Asia—over this continent and the West India Islands—over Russia, and even into the Papal states, offer a guarantee of a future consumption of iron and coal, and all the chief mineral products of the earth, to which no bounds can be assigned.

Each railway requires iron for its track, engines, cars, and frequently for its stations. Each new steamer requires coal to drive it—iron for its engine, and sometimes for its hull—and five tons of coal for each ton of iron it consumes.

Every steamboat that is launched, and every road that is forced into the interior, give birth to new enterprise, new wants, and new commerce.

The manufacture of the iron, and the propulsion of the machinery, require coal; the quantity increases with the expansion of the railway system; the system extends the area of civilized population, and consequent agricultural wealth: This wealth needs transportation, and this transportation again needs coal and iron.

In this country, peculiarly, the consumption of this fuel is increasing with the general increase of population where it is used—with the wider area over which it is used—with each new purpose to which it is applied—with the growth of every description of manufacture requiring power—with every new improvement by which the cost of its conveyance is diminished, and with the extension of inland, coast, and ocean navigation.

Looking now first at the present trade—pent up and confined for the want of means of conveyance—and at these obvious causes of a vast future increase—then at the fact that this improvement penetrates the centre of the anthracite district, and will offer unrivalled facilities for direct and cheap conveyance to distant markets, it is the deliberate opinion of the Board, that the demand will not only immediately exceed the quantity needed for the ample remuneration of the company's exertions, but speedily swell to an extent that will require the utmost possible increase of the capacity of their works.

By order of the Board,

CHARLES ELLET, JR.,

President.

## NOTES.

**Note 1.**—There are but three levels on the whole navigation which have not been tested during the season with a depth of 6 feet. The least depth in any one of these three levels was 5 ft. 6 inches. These will all be prepared for 6 feet during the winter, and it is hoped that that depth can soon be permanently maintained throughout.

The increased depth has been obtained in nearly all the pools by raising the dams. In the few cases in which it is to be ultimately obtained by dredging, the dams have only been temporarily raised.

**Note 2.**—The increase of the anthracite trade for some years to come, appears likely, from these facts, to average not less than 600,000 tons.

If we assume that the Schuylkill navigation company, with all the advantages of their enlarged work, will obtain *but one year's increase* of this trade, at a charge of 60 cents a ton for toll, it will yield them an annual revenue of \$360,000, or 6 per cent. on an investment of \$6,000,000.

The company have resources in their miscellaneous tonnage and rents, sufficient to meet all current and probable contingent expenses.

**A.—Statement of the Schuylkill Navigation Company, January 1, 1847, Excluding the Enlargement and Improvement of the Works.**

General charges, cost of work.....	\$3,550,259 07
Amount paid for damages.....	153,678 78
Amount paid for real estate, including \$12,468 08 sold, not paid for.....	200,864 04
	<b>\$3,904,801 86</b>

Capital stock.....	\$1,665,600 00
Permanent loans (old account).....	1,792,622 37
Bonds payable for damages and real estate.....	30,927 50
Profits disbursed in payment of loans, damages, and new work.....	435,651 99
	<b>\$3,904,801 86</b>

**B.—Statement of the Accounts of the Schuylkill Navigation Company for 1846.**

Balance of income and expense account, January 1, 1846.....	\$21,087 96
Tolls received, 1846.....	35,879 48
Rents.....	18,732 91
Unclaimed dividends.....	786 50
" interest.....	5,830 72
Convertible loan of 1845, settled for by subscribers in 1845.....	\$547,150
do do 1846.....	744,540
	<b>1,291,690 00</b>

Bonds payable for car account.....	11,000 00
Boat loan settled for in 1845.....	\$1,800 00
" " 1846.....	146,361 67
	<b>148,161 67</b>

Bills payable.....	828,580 15
Improvement debt, issued to contractors.....	81,200 00
Individual accounts unsettled.....	37 17
Received for real estate.....	\$5,761 00
Less, disbursed for ditto.....	\$2,828 13
Less, disbursed for damages.....	2,667 30
	<b>5,495 43</b>
	<b>265 57</b>

**\$2,443,252 23**

\* Boat loan paid off in 1846, \$5,205.

Current expenses for repairs.....	\$3,730 79
" " salaries and wages.....	14,616 95
Interest account.....	128,630 75
State tax.....	2,898 14
Schuylkill navigation company stock.....	500 00
Phoenixville bridge company stock.....	100 00
Loans of the Sch'll nav. co. held by the president in trust.—Loan of 1837.....	\$78,701 32
Convertible loan of 1844.....	47,719 74
	<b>126,421 06</b>
Bills receivable.....	36,325 24
Cash.....	78,019 50
Car account for 1845.....	\$29,671 95
" 1846.....	29,366 93
	<b>59,038 88</b>
Boat account for 1845.....	\$10,913 96
" " 1846.....	126,580 46
	<b>137,494 42</b>
Improving and enlarging the works in 1845.....	\$213,470 13
do do 1846.....	846,993 94
	<b>1,060,464 07</b>
Discount on convertible loan in 1845.....	\$109,430 00
do do 1846.....	213,492 50
	<b>322,922 50</b>
Discount on boat loan.....	15,336 67
Expended by S. Griscom, sup't., for enlarging the works, not finally settled.....	\$181,130 16
Do., by D. D. Lewis, sup't., 265,123 86	
Individual acc'ts unsettled, 10,499 31	
	<b>456,753 83</b>
	<b>\$2,443,252 23</b>

**C.—Details of the Liabilities of the Schuylkill Navigation Company on the 1st day of January, 1847.**

Capital stock.....	\$1,665,600 00
Loan not convertible, due at various periods.....	1,487,499 30
Convertible loan of 1844, due in 1860.....	295,123 07
" " 1845, due in 1865.....	1,300,690 00
Boat loan.....	148,161 67
Improvement debt (not convertible) due in 1856.....	109,200 00
Bonds for real estate bought, not paid for.....	10,327 50
	<b>5,016,601 54</b>

Less amount of loans held by president in trust.....	126,921 06
	<b>4,889,680 48</b>

Bills payable.....	843,980 15
	<b>5,733,660 63</b>

Cash on hand.....	\$106,042 83
Bills received.....	16,325 24
	<b>122,368 07</b>

	<b>5,611,292 56</b>
Interest due January 1.....	44,375 24
	<b>\$5,655,667 80</b>

The tonnage of articles descending the river, other than coal, in 1846 was... 76,438 tons. And the tonnage on articles ascending the river in 1846 was... 32,350 "

**NOTE.**—The navigation was this year open from Philadelphia to Phoenixville June 29th, from Philadelphia to Reading September 11th, and from Philadelphia to Port Carbon November 16th.

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**

Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

2m39

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR  
PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLANS.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**LAP-WELDED WROUGHT IRON TUBES**

for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**SPRING STEEL FOR LOCOMOTIVES.**

Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**A. & G. RALSTON & CO., NO. 4**

South Front St., Philadelphia, Pa.  
Have now on hand, for sale, Railroad Iron, viz: 180 tons 24 x 1 inch Flat Punched Rails, 20 ft. long.  
25 " 24 x 1 " Flange Iron Rails.  
75 " 14 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

THE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arrester have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

FRENCH & BAIRD.

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston.

ja45

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

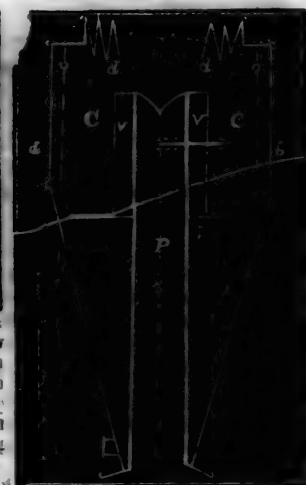
**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callen-lers; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

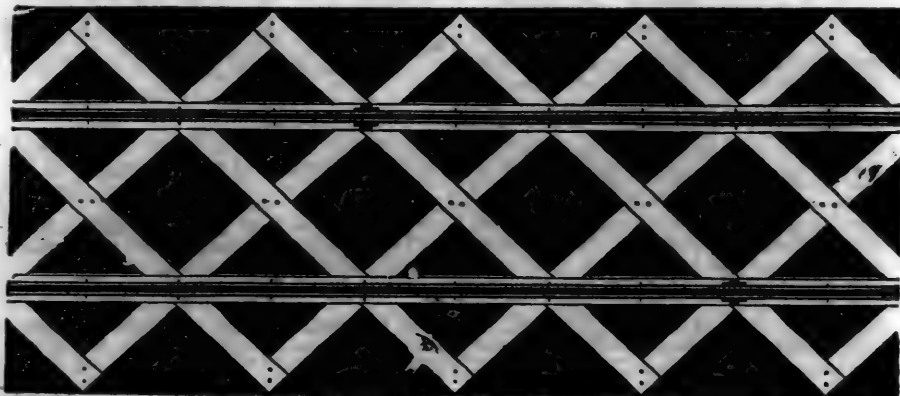


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10c

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellys are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellys, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellys for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
597 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4¢ =	101 25
Workmanship free of patent charge.	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45  
He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33c

## LAP—WELDED. WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y7 Maryland.

### ENGINEERS' AND SURVEYERS'

### INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Railroad Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Agents.

1y48

77 Pine St., New York.

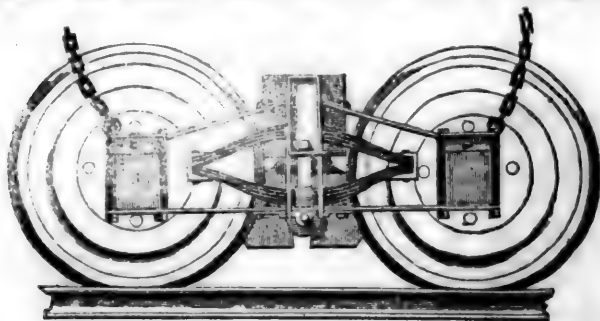
**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 321y

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ropes, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

**N.B.** The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1v24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
1v25 Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents the engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1v19

Supr Motive Power

**THE SUBSCRIBERS, AGENTS FOR**

the sale of

Codorua,

Glendon,

Spring Mill and

Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L. KIMBER, & CO.,**

59 North Wharves,

Jan. 14, 1846.

[1v4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**

43 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.

New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.



# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " × 24 " "
"	3,	14½	" " × 20 " "
"	4,	12½	" " × 20 " "
"	5,	11½	" " × 20 " "
"	6,	10½	" " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
Peter Cooper, }  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va. }  
J. R. Anderson, Tredegar Iron Works, Richmond, Va. }  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn. }  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R. }  
New Jersey Malleable Iron Co., Newark N. J. }  
Gardner, Harrison & Co. Newark, N. J. }  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON  
Mar. 20th 4 South Front St., Philadelphia.

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, turnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45 feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

**TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS, Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28f

J. BALL & CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7 11-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. WALDO HIGGINSON, Agent.





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	\$1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**

Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/2 o'clock a.m.	12 1/4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/2 o'clock a.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

25th Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between these points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 13 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 1371

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3 1/2 p.m.  
Arrives at.....9 a.m. and 6 1/2 p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12 1/2 p.m. and 8 p.m.  
Leaves York for Columbia at.....1 1/2 p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	\$1 50
" Wrightsville	2 00
" Columbia	2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weigh Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	\$0 50	\$0 75

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 63 1/2
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On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 30	0 26
---	------	------

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20	pr. 100lbs. 35
--	------	----------------

Crockery, per cubic foot	0 15	" " 25
Molasses and Oil, per hhd., (smaller casks in proportion)	9 00	13 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
---	------	------

Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.  
On measurement goods... 13 cts. per cubic ft.  
On brls. wet (except molasses and oil)... \$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery... 40 cts. per hundred.

On hdds. and pipes of liquor, not over 120 gallons... \$5 00 per hhd.  
On molasses and oil... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily... \$26 50  
Fare through from Charleston to Huntsville, Decatur and Tuscumbia... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warren, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA**

Road line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4 1/2 " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 254f

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Pares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and	\$3.00
" Reading, 58		2.25 and	1.90
" Pottsville, 34		1.40 and	1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81f

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.  
The Boat Lines, via Newcastle & Frenchtown R.R.  
Leave Philadelphia at 3 p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE,  
21f Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at station.

F. C. ARMS,  
Sup't. of Transportation.

Augusta, Ga., July 15, 1847. 41\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 22 1/2	1 54	1 05	0 81	0 86
and Knoxville & intermediate points.	0 22 1/2	1 54	1 10	0 76	0 81
and Chattanooga.				0 61	0 66
Between Augusta and Decatur and intermediate points.	\$0 24 1/2	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	\$0 24 1/2	1 70	1 20	0 80	0 85
and Chattanooga.				0 65	0 70
Between Charleston or Savannah and Decatur and intermediate points.	\$0 32 1/2	2 20	1 35	1 05	1 10
and Knoxville & intermediate points.	\$0 32 1/2	2 20	1 40	1 00	1 05
and Chattanooga.				0 85	0 90

1st class.—Boxes of Hats, Bonnets and Furniture per foot.  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cases) Drugs, Confectionaries, Shovels, Spades, Seythes, Smiths' Bellows, Baskets, Tubs, Sifters, Brooms and other light articles, per 100 lbs.  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Linseed Oil, per 100 lbs.  
Cotton. Per 100 lbs.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAML KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

41f

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	3 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

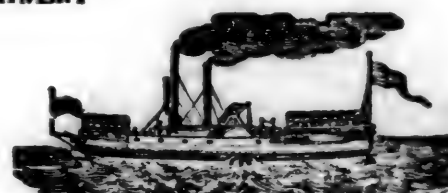


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 38.]

SATURDAY, SEPTEMBER 18, 1847.

[WHOLE No. 587, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, September 18, 1847.

### Schuylkill Coal Trade of 1847.

We are again enabled to publish a weekly statement of the Coal Trade upon the Reading railroad, from the office of the company—the following being the first official statement received by us for many months.

PHILADELPHIA AND READING RAILROAD—Amount of coal transported during the week ending Thursday, September 9, 1847.

	Tons, cwt.
From Port Carbon.....	11,419 14
" Pottsville.....	5,163 06
" Schuylkill Haven.....	14,236 11
" Port Clinton.....	2,954 17
Total for week.....	33,774 08
Previously this year.....	883,054 05

Total.....916,828 13

HENRY M. WALKER,

Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending September 9, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	7,523 18
Schuylkill Haven.....	449 08
Port Clinton.....	55 00

This week.....8,027 06

Previously.....136,375 08

Total.....144,402 14

### Great Western, Canada, Railway.

We give, in this number, the report of CHARLES B. STUART, Esq., to the directors, of his examinations and location of the Great Western (Canada) railway; accompanied by a map, showing its eastern and western connections. It will be seen, by referring to the map, that this road is destined to oc-

cupy a very important position in the great system of railways in this country. We shall give in our next number the Appendix to the report, which contains a mass of very interesting statistics, in relation to the business of that region of country from which this road is to draw its support.

From the report we infer that the location made by Mr. Stuart is more favorable than the most sanguine friends of the work anticipated.

### Good Examples may be Safely Followed.

The following letter expresses itself in a few words It says—

"K——. M——. September 2, 1847.

To the Editor Railroad Journal:

"Sir: I enclose \$5, for which please credit me with one year's subscription to your Railroad Journal.

Yours respectfully,

"J. M. B——."

It may not be amiss to say that this amount pays to August 1st, 1848. Who will go beyond that, and so link the Journal into the next year as to ensure its successful continuance—for many years to come?

### Tamaqua and Easton Railroad,

We have read, says the editor of the Miner's Journal, the report of John Childe, Esq., appointed to make a survey of this road, which is intended to connect New York through the Somerville, (New Jersey) railroad. The road is suggested to be located from Tamaqua through the Mahoning creek valley, to the Lehigh opposite Weis' port, and thence on the right bank of that stream through Allentown to Easton. The distance through will be 59½ miles. There will be an ascent of five feet per mile for the first four miles from Tamaqua to summit A—from thence descending 27 feet per mile for 13 miles to near Mauch Chunk. From thence to Easton it will be either level, or descending from 1 to 18 feet per mile. From thence the road will be connected by another now about being commenced, the stock, we learn, being all subscribed for. The estimated cost of single track, with 30 miles of turnouts, making in all 90 miles, is \$2,009,000. The estimated cost of equipments, including 15 locomotives, 2000 cars, tools, etc., for coal, merchandize, passengers, etc., \$745,300—total cost of roadway and equipments, \$2,760,000, or \$46,369 per mile.

The estimated amount of coal business per annum is 1,000,000 tons through at 62½ cents per ton, \$625,000. Of passengers, merchandize, way coal, etc.,

\$279,500—making a total of \$902,500. The expenses, estimated at \$475,380—leaving the total net income \$427,120, which is more than 15 per cent. on the estimated cost, etc.

### Virginia Iron and Steel.

"We had the pleasure, says the editor of the Winchester Republican, on the 16th, of visiting the works of the 'Virginia Steel Company,' in the city of Richmond, located on the margin of James river, and operated by water from the basin of the canal. The company contemplate making steel from the pig iron, which they will first refine and draw into bars of proper sizes, and then convert into steel.

We saw some beautiful samples of steel, made of iron from above the mountains; but the company found so much difficulty in procuring a ready and suitable supply of bar iron, that they suspended making steel, until they could erect works to manufacture their own iron. This they have mainly accomplished, and are about to commence both branches of their business. We observed three hammers and five refining and chafery forges, in the iron works, and others putting up. In the steel works, there are three large convertories, with rolling and hammering machinery.

Two members of the company present stated to us that all that was now lacking, were the workmen—and that the superintendent had gone to the north to hire them. We asked, why not employ our own mountain workmen? and upon further inquiry, we found that *refiners and hammer men*, are the kind of workmen needed; and that the iron will be manufactured in the old way, by refining with charcoal and drawing with the hammer. There will be neither puddling nor rolling; so that many of our mountain workmen may find work and receive liberal wages, by applying to the company. Letters addressed to Col. C. S. Morgan, Richmond, will elicit any further information needed on the subject.

We have in our possession a sample of the steel manufactured at the Richmond steel works; and if any thing from England can be produced to excel it, it must be something better than any thing we have yet seen."

It is only requisite for the men of intelligence and property of Virginia, to give their attention—their minds—to the development of the wonderful mineral resources of the *Old Dominion*, to make it what nature designed it to be—at least equal to any other State in the Union for its productions.

They must think more of business than pleasure—more of *resuscitating* their impoverished soil, than of regaining their political ascendancy. A good business man—one who cultivates the soil, or causes the earth to yield up its rich treasures of minerals, or turns those treasures into useful articles, for the use of mankind—is worth more than a score of politicians, whose main business it is to deceive, and live upon, the masses who vote.

#### Pennsylvania Central Railroad.

This important subject begins to attract its proper share of attention. Its value is not, however, as fully appreciated by a certain class—we mean the wealthy real estate holders, and the retired men of wealth, whose thousands are loaned out on bond and mortgage—we would, therefore, avail of every opportunity to lay before them important facts and arguments, bearing upon the subject, calculated to convince them that it is their *interest*, as well as their duty, to aid in the immediate construction of the Central railroad to Pittsburg; and then to contribute largely to its extension westward, *to*, and *through*, Ohio, in accordance with the plan proposed by Mr. J. A. Roebling, in the Journal of February 27th and March 6th. The views of Mr. Roebling are well sustained by an intelligent and liberal-minded gentleman, who has recently passed through that region of country, to become better acquainted with its resources and its people, and who has given the result of his observations in a series of letters published in the *North American and United States Gazette*, of this city, from the first of which we make the following extracts, and ask for them the attention of all those who are interested in the Central railroad.

"I had intended to ask the attention of your readers to points vitally important to our interests, rather than indulge in mere details of the road. At New York the number of familiar faces who formerly made their purchases or passed a portion of the season in Philadelphia, afford food for inquiry as to the cause of a change, which at once fills her almost innumerable hotels with profitable customers, and so seriously affects our home trade, as well as foreign commerce. This may be readily found in the wise policy of New York in improving her vast natural advantages, and stimulating every avenue of trade and travel, while we have supinely abandoned the field to our energetic competitors—sinking untold millions in worthless stocks, instead of investing them for the preservation and extension of our once proud pre-eminence. Among the remedial measures still within our reach, permit me to suggest the speediest possible completion of our road to Cleveland and the Mississippi.

"Thousands of southern travellers who used to adopt the old fashioned modes of reaching Philadelphia, now ascend the Mississippi or Ohio, cross over to the lakes, and thence via Buffalo to New York; while the route by Cleveland—perhaps the most beautiful city of the west—would afford one of superior interest to Philadelphia, and save 300 miles needless travel! It is a most mortifying fact that throughout the west and southwest, every one speaks of Boston and New York—while Philadelphia is rarely mentioned. Our churlish capitalists clamor at the aid wisely granted by our councils to this sheet anchor of our hopes, and our fashionables vegetate among the vanities of the watering places. Meanwhile Boston has advanced her millions in buying up and completing the railroads of Ohio, Michigan, and the far west; while the sagacious inhabitants of the eastern cities, often accompanied by their wives

and daughters, extend their journeys into these new States—examine, and supply their wants, expend their capital in judicious investments, intermingle their interests, and form social ties with their influential citizens. Let Philadelphia follow these wise examples, and while her citizens would be delighted at the beauty of the new world here developing its mighty resources with giant strides, they would begin to appreciate the necessity of seeking to share in the golden harvest.

"At Galena, we were told their export of lead alone exceeded two millions in value, and that the annual transactions in exchange of one of her citizens reached \$4,000,000. The approach to St. Louis the emporium of this region, struck us with surprise. About 60 steamers were moored at her quays; long lines of noble warehouses stretched along the bank, in the rear of which the varied forms of industry—sugar refineries, furnaces, foundries, shot towers, white lead factories, etc.—gave evidence of great energy and enterprise. One leading merchant assured us that during the past season, the daily export of lead, hemp, flour, corn, provisions, machinery, etc., often reached 15 to 20,000 tons. New Orleans has told us how justly she appreciates the effect of our rivalry in the mighty tribute she now monopolizes from this region. Push your *back bone line* at once to St. Louis and Cincinnati, and a stream of travel and commerce will richly repay the cost of outlay, and astonish the millionaires, who may find their idolized real estate, in default of this great desideratum, sinking in value beneath taxation and the successful rivalry of more enterprising cities. While much of our city property has remained stationary, or worse, for years, owing to these causes, St. Louis, Cincinnati, and even Dayton, can point to fortunes of one or more millions, the result of rapid rise in real estate. One of these instances at St. Louis, was the case of an officer who was induced to invest \$800 in land. This has risen so rapidly, that he now derives an income of \$35,000 from the ground rents created out of it. One of our most estimable citizens was persuaded to buy a few acres adjoining, for a trifle, which will secure a fortune to his children. Had we possessed the means of communication with these new cities, and the enterprise to have placed judiciously business branches in them, Philadelphia fortunes to a vast extent would have been realized. Now they have created so much capital for themselves, and introduced such a variety of manufactures, that unless Rip wakes up and puts forth *arms of iron*, to clasp them to a closer embrace! they will soon become totally estranged from us, and derive their partial supplies from New Orleans, N. York and Boston. Among the items of produce received last year by the former city, may be noticed 46,303 hogsheads, 369,601 barrels and 10,233,452 lbs. pork in bulk; 107,637 bbls., 334,969 kegs lard. One half of this, to say nothing of her oceans of flour, corn, wheat, beef, lead, tobacco and hemp, and which your '*back bone line*' would attract to Philadelphia, could not fail to double our foreign commerce. • •

"But we must press this work *beyond* Pittsburg. The people of the west complain bitterly of the vexations and exactions they suffer there. Instead of permitting their produce to proceed to an eastern market direct, for the sake of a pittance of drayage, storage or commission, their casks are thrown about in the mud at a minimum loss of 25 cents for mere defacement, even if they escape more serious injury—added to which the enormous exactions of the carriers, (\$3 per bbl. for flour, and 54 cts. per bush. for corn, which is 150 per ct. beyond the present value of maize here!) have drawn from Philadelphia a

half a million of barrels within the current year! Our capital has chiefly constructed the Pennsylvania and Ohio canal; and from the same pernicious and ruinous policy, we have been assured that its usefulness and consequent profit have been destroyed—she availing herself of it to send her own manufactures westward—but effectually driving the produce of the west to seek the more distant and circuitous routes via Buffalo and the Mississippi. Her suicidal policy is every day becoming more ruinous to us, as the great capitals, now nearly complete across Illinois, Indiana and Michigan, will open new channels to New Orleans, to the vast injury of each.

"Let, then, Pittsburg unite in extending the benefits of our proposed railroad to the Mississippi and the upper lakes, upon principles of enlightened liberality, and she will share richly with us the mighty stream of commerce now unfortunately drawn beyond the reach of both, to the more distant ports of New Orleans, Boston, and New York. • • E. C."

#### Great Western (Canada West) Railway Report.

To the President and Directors of the Great Western Railway Company.

GENTLEMEN,—In submitting to your Board a report on the great work which it has been my duty to locate, I feel compelled to admit my inability to do justice to its unrivalled claims either as a national or commercial enterprise.

The stockholders of this company control the destiny, and may appropriate the profits, of a line of railway two hundred and twenty-eight miles long, under a liberal charter, with a right to exact toll without legal restriction, to make various important branches—running through a district of country highly favored by nature, and occupying a site, which, for the attainment of speed, and the future economy of working, is unsurpassed in this country or Europe.

Commencing in the west, at the head of Lake Erie, where daily steamers connect it with all the shores of the great upper lakes, and the fertile lands of the north western States, and a railway now nearly finished, completes the line through the heart of Michigan,—touching in its route, and by its tributaries, at convenient ports on Lakes St. Clair, Huron, and Ontario,—and terminating in the east, on Niagara river, where two railways and a noble canal form its continuation to New York and Boston; and Lake Ontario and the St. Lawrence furnish an independent channel to Montreal and Quebec—this work seems destined to absorb the traffic of a wider region than often falls to the share of any single enterprise.

All these great tributary trunks, radiating from the eastern extremity of your line, to every prominent point on the New England seaboard, and westwardly almost to the confines of civilization, are now finished, and many of them among the most productive of the works of internal improvement on the continent; while your road concentrating, and in a great measure absorbing, the traffic of all, is the unfinished link in the greatest continuous chain of railway communication in the world.

This immense chain, attracting in its course, numerous tributaries, extends from Portland to Boston, thence westwardly to



Buffalo and the Falls of Niagara, Detroit, Chicago, and on to the valley of the Mississippi—all the links of which, over a space of seven hundred miles eastwardly, are finished, and to the west, nearly one hundred and fifty miles are in operation, and the remaining portion under contract, or on the point of commencement.

And such is the fortunate position of your improvement, that it must form an essential part of another great, though more northern line, commencing at the head, and extending along the Canadian shores, of Lake Ontario, through Toronto and Kingston, and thence on the borders of the St. Lawrence river to Quebec and Halifax; with branch lines reaching out from Oswego to Syracuse, from Cape Vincent to Rome, from Ogdensburgh to Boston, and from Montreal to Portland; portions of each of which are now in progress of construction.

It is not professional skill that has placed the location of your railway on the precise ground that will enable it to control the trade and travel of such a vast portion of the Canadas and the prosperous American States, east and west of its termini. It owes its value and all these incomparable advantages, to the physical formation, and great geographical divisions of the country.

The direct line of travel from the Atlantic coast of the New England States, to the Mississippi, has been controlled by that distribution of hills and valleys, which formerly ruled the location of the Erie canal, and conveyed that work due west through the central and richest portions of New York—in a region where great cities have since grown up, and the highest grade of national prosperity has been already approached.

This line of trade and travel has been brought to the Niagara frontier, a little south of the western end of Lake Ontario, and a little north of the eastern end of Lake Erie, where nature seems to have provided for its further progress by bringing the opposite cliffs so near together, that it is practicable there, and there only, to pass over all the waters discharged by the cataract of Niagara, by a single arch.

This westward line cannot be deflected to the south, for Lake Erie lies in the way; and it cannot diverge to the north, for Lakes Ontario and Huron intervene in that direction. It must pass between the lakes, below the falls, and along the succession of valleys and level plains which are found in the same parallel, and pursuing the same direction in West Canada. It cannot deviate from this course until it again encounters the narrow channel that connects the northern lakes with Lake Erie, and that separates Canada from Michigan.

After passing this channel, the same succession of level plains is continued into the fertile and almost boundless region known as the VALLEY OF THE MISSISSIPPI,—that immense field which is now absorbing the surplus population of the kingdoms of Europe, and increasing an influence of wealth with a rapidity that has hitherto been without a parallel in the history of the world.

It is this work—connecting with these inexhaustible feeders, and hereafter to furnish the means of intercourse between the States which are east, and the States and territories west of Lake Erie—that it has been my duty first to explore, and subsequently to establish, by extensive and accurate surveys. It is a work running through the western peninsula of Canada, which depends for its support (as will be hereafter exhibited in greater detail):

1st. On the trade and travel of the St. Lawrence and Lake Ontario, brought from the east by numerous steamers, to the mouth of the Niagara river, and to the city of Hamilton, at the head of the lake:

2d. On that of the State of New York, brought by the Erie canal to the foot of Lake Erie, and Niagara river near the falls:

3d. On that brought by existing railways, from the cities of New York and Boston, and the other ports of the New England States, through the centre of New York to Buffalo and Niagara Falls, destined for Michigan and the north western States:

4th. On the traffic and travel brought by steamboats from Lakes Michigan, Superior, and Huron, to the western termini of your road:

5th. On the trade and travel of the States of Michigan, Illinois, and the Mississippi valley, brought to the same point by the Michigan Central railway, soon to be completed to Lake Michigan opposite Chicago.

These are the great contributors to the support of your work—the lines already in activity which diverge from its extremities towards the east and west—quite independent of the wealth and resources of the immediate district traversed by the improvement itself—by far the most populous and fertile portions of Canada West—which this line *must* control without rival, or the probability of future rivalry.

Ample surveys, which have been extended over every route, offering any pretension to authorize its exploration, have led to the conclusion that there is no appropriate ground on which to place a competitor on either side of that which has been recommended for your adoption.

The "Pelham Heights" and deep ravines cutting through the Queenstown Ridge, prohibit a location on the table lands south of Hamilton, to reach Niagara Falls,—an idea once seriously entertained, but finally dispelled by the examinations recently completed.

The result of the extensive surveys which I have conducted, with explanatory charts and profiles and estimates in detail, have already been submitted to your Board in my report as engineer of location. I have therefore now only to exhibit the characteristics of the line, which, on the authority of these surveys, I have recommended for the definite location of the Great Western railway, and those evidences of its future success which, in my view, demand its construction.

#### LINE OF LOCATION.

The annexed map exhibits the line of location, from the site of the proposed suspension bridge over the Niagara river, to Windsor,

opposite the city of Detroit, crossing the Niagara, Gore, Brock, London, and Western Districts of Canada West, and passing through the city of Hamilton and town of London, agreeably to the provisions of the charter. It exhibits also, the branch to Port Sarina, at the foot of Lake Huron.

In the location of the work, careful surveys have been made of the country between the Niagara and Western frontiers, embracing nearly fifteen hundred miles of instrumental examination, and resulting in reducing the length, and improving the gradients and curvatures of former surveys in a remarkable degree; a saving of thirteen miles having been effected in the aggregate distance, and the maximum grade, previously established at eighty feet having been reduced to forty-five feet per mile.

On the whole distance of 228 miles, over 217 miles is perfectly straight, and the length of the located line, differs less than four miles, from an *air line* drawn between the same points. (See note A.)

I know of no case in this country or elsewhere, comparable with this, and it is doubtful whether another location of the same extent can be found on the continent, so well adapted to the attainment of high velocity, and great economy of transportation.

**Gradients.**—On a long line of railway, forming a link in an extended chain of communication, where great speed and punctuality are essential, easy gradients are of the highest importance.

A reference to the annexed map and profile shows that there is but one summit between the waters that flow into Lake Ontario, and those flowing into the Thames, Detroit, and St. Clair rivers, and that the approach to this dividing ridge is through valleys which afford long and gentle slopes for reaching its summit.

The belt of country extending from the Hudson to the Mississippi, through the centre of New York, Canada West, and Michigan, is the most even and uniform that is to be found in any parallel between the western waters and the Atlantic coast.

This entire distance of nearly one thousand miles, may be traversed along the valleys of rivers, over extended plains, or on the shores of lakes, without interruption from any considerable range of hills.

The gradients of the line will compare favorably with those of any railway of the same length in Europe or America. Approaching from the west, the summit, three hundred and sixty feet above the western terminus, is reached by grades of twenty feet per mile: going from the east, the maximum grade is forty-five feet per mile, and the whole length of this grade is found in a space of twelve miles. (See note B.)

The maximum grade is considerably below that of all the railways in the United States, designed as great thoroughfares between the "west" and the seaboard; and much below many of those on the line between Albany and Buffalo, a district of country remarkable for the evenness of its surface.

To sum up the general results briefly, it

will be seen by reference to the tabular statements, that the line of location presents the remarkable feature of having *ninety-five per cent.* of the whole distance in tangent lines, and two-thirds of the remaining *five per cent.*, on curves of which the radii vary from 5,730 feet to 11,560 feet: while 183 miles is either entirely level, or exhibits inclinations of less than five feet per mile, and 54 miles presents slopes of less than 20 feet per mile.

There is no grade on the Port Sarnia branch exceeding 10 feet per mile.

**Right of Way.**—The right of way has been gratuitously released for a distance of nearly one hundred and eighty-two miles, embracing *two thousand four hundred and sixty-four acres* of land, exclusive of ground given for "depots."

From the liberal spirit of the charter, which allows benefits to offset damages, and from the great interest manifested by the landholders generally throughout the entire line, in favor of the work, it is anticipated that most of the remaining portion will also be obtained without expense. The item of land damages, therefore, has not been included in the estimates of the cost of the work.

**Depot Grounds and Buildings.**—Suitable grounds for passenger and freight depots, have been donated to the company, in nearly all the important towns and villages on the line, and also at both of the western termini of the railway, at Windsor and Port Sarnia, amounting in the aggregate to over two hundred acres. In all instances adequate provision has been made in procuring sites for stations to cover the present, and probable future, business of the country.

The plans and estimates for the various depot buildings and necessary shops, have been prepared with a view to the erection of substantial and durable structures of stone or brick, sufficiently extensive to accommodate the anticipated trade and travel for several years after the completion of the work.

**Wharves.**—The grounds given the company for the construction of wharves and docks, to accommodate the business of the lakes, are ample, presenting a front of nearly one mile on the waters of Burlington Bay at the city of Hamilton, of one-third of a mile on the Detroit river at Windsor, and of about the same extent on the St. Clair river at Sarnia.

The estimates of cost include permanent wharves at Hamilton, two thousand feet in length, at Windsor (opposite the eastern terminus of the Michigan Central railway) of one thousand feet and at Port Sarnia of five hundred feet.

**Plan of Construction.**—The estimates are made for a single track, with turnouts at proper intervals.

To provide for a thorough drainage, the cuts are estimated for twenty four feet, with side ditches five feet wide. The embankments are fourteen feet in width on top, and proportionally wider, where they exceed twenty-five feet in height.

The road bed is to be covered with a ballast of coarse gravel or broken stone, two feet

in thickness, on which white oak ties, six by twelve inches, and eight feet long, are bedded, at intervals of thirty inches from centre to centre.

On these ties is spiked an iron rail, of seventy pounds to the yard, on the central division, and sixty pounds to the yard on the eastern and western divisions, and the Sarnia branch. These rails are firmly secured at the joints, by cast iron chairs of twenty-five pounds weight.

The culverts, viaducts, and bridge abutments, are intended to be of permanent and durable masonry. The grade line through all the towns and villages on the route, and at all the public roads and farm crossings, has been established, so as to allow the travel to pass over the railway by bridges, or under the track by culverts,—an arrangement necessary to remove the danger of collision on a work intended for frequent trains at high velocity. The estimates provide for a substantial fence five feet high, free from bars or gates, on both sides of the track.

**Estimated Cost.**—In making the estimate of cost, great care has been taken to ascertain with accuracy the quantities of earth and rock to be removed or procured for the formation of the road bed, and the quality of the materials to be excavated.

The principal streams have been sounded for the foundation of the culverts, viaducts, and bridges, and the quantity of masonry in the different structures has been calculated from special plans made for each locality.

The prices adopted have been derived from the actual cost of works of similar character in the United States, but to which has been added a liberal per centage for incidental expenses, and interest on the instalments during the construction of the work.

The soil throughout the whole distance from Niagara river to London is generally composed of sand and gravel, well adapted to the formation of a substantial and durable road bed.

West of London the soil is more mixed with clay, but gravel ridges are still found at convenient intervals to furnish an abundance of dry material for ballast.

The cost of stone and timber has been carefully ascertained at the different points where heavy masonry and bridges are required, and the utmost confidence is felt, that the quantities and prices are sufficiently liberal to meet every probable contingency.

The line touches several points where vessels can deliver iron, and thus save much expense in its distribution.

It may be noticed that railroad iron, delivered in Canada, costs *five pounds less per ton*, than the same quality and pattern, manufactured in, or imported into, the United States, making a difference in favor of the Great Western railway of over £500 per mile, or an aggregate of about £125,000, or \$500,000 for the whole work.

**Estimate.**—The cost of the work, by the detailed estimates now submitted, is as follows, viz:

*Eastern Division, from Niagara River to Hamilton City, 42-10 miles in length.*

Graduation as per est., etc.	\$570,048	or £142,512
Superstructure, including branches	305,640	" 98,910
Total amount	\$965,688	£241,422
Add 6 per cent. int. for 6 mo's.	98,970	" 7,245
Total cost	\$994,658	£248,667
Equal to	\$23,682	or £5,920 per mile.

*Central Division, from Hamilton City to London, 75-84 miles in length.*

Graduation, etc., as per est.	\$1,328,800	or £332,200
Superstructure, including branches	722,000	" 180,500
Total amount	\$2,050,800	" 512,700
Add 8 mo's int. at 6 per cent.	82,286	" 90,571
Total cost	\$2,133,086	£533,271
Equal to	\$27,067	or £6,767 per mile.

*Western Division, from London to Windsor, 109-95 miles in length.*

Graduation, etc., as per est.	\$602,965	or £150,741
Superstructure, including branches	1,092,500	" 273,125
Total amount	1,695,465	" 423,866
Add 6 mo's int., 6 per cent.	50,864	" 12,716
Total cost	\$1,746,329	£436,582
Equal to	\$15,875	or £3,969 per mile.

*Port Sarnia Branch, 49-85 miles in length.*

Graduation etc., as per est.	\$233,752	or £58,438
Superstructure, including branches	412,500	" 103,125
Total amount	646,252	" 161,563
Add 6 per cent. int. for 6 mo's.	19,387	" 4,847
Total cost	\$665,639	£166,410
Equal to	\$13,312	or £3,328 per mile.

#### Summary.

Division.	Length in miles.	Estimated cost.			Total Halifax currency.
		Graduation.	Super-structure.	Inter-est.	
		£	£	£	£
Eastern.....	42-10	142,512	98,910	7,245	248,667
Central.....	75-84	332,200	180,500	90,571	533,271
Western....	109-95	150,741	273,125	12,716	436,582
Main track.	227-89	625,453	552,535	40,532	1,238,520
Pt. Sarnia br.	49-85	58,431	103,125	4,847	166,410
Total .....	277-74	1,683,884	1,055,660	145,379	1,404,930

From the foregoing summary it appears that the cost of the main line from Niagara river to Windsor will be £1,238,520, or \$4,954,080, and including the Port Sarnia branch, £1,404,930, or \$5,619,720.

Should it be deemed expedient to complete the eastern and western divisions as speedily as possible, and use the Plank and McAdam road, between London and Hamilton, during the progress of the grading of the central division, the cost, as estimated, would be as follows:

Eastern division,	42-10 miles,	£248,667
Western division,	109-95 "	456,582
Total,	152-05 miles,	£705,249

It thus appears that two-thirds of the main line can be completed for 56 per cent. of the total cost of the whole, and, from the favorable character of the work on the eastern and western divisions, these portions could with economy be graded and brought into use in twelve or fourteen months. The heaviest and most costly work is found on the central division, which could not be profitably completed in less than two years.



*The Route and its Connexions.*—An inspection of the map accompanying this report, showing the route of the Great Western railway and its connexions, with other primary improvements completed and projected, will exhibit its importance, not only in facilitating the internal traffic of the province, but also as the *central link* in the extended chain of railways reaching from New York and Boston to the Mississippi river.

The completion of your railway simultaneously with the extension of the Central railway, would connect Lake Michigan with Boston harbour, and leave a break of only 65 miles to be filled to reach Chicago.

The MICHIGAN CENTRAL railway terminates at Detroit, immediately opposite the western terminus of your work at Windsor, 146 miles of which is now in operation through populous and well cultivated portions of the State; and it is already become the channel of conveyance for a large amount of products and merchandise.

This railway has been recently purchased by eastern capitalists, and is now being relaid with heavy iron, and the western portion is under contract to be completed to Lake Michigan by the fall of 1848. The earnings of this work, since its purchase in September, 1846, to the 1st of May, as appears by the company's report, were for

Freight, . . . . .	\$146,952 55
Passengers, . . . . .	60,759 89
Miscellaneous, . . . . .	1,587 66

Total, . . . . . \$209,300 10

It cost to work the road and pay for repairs during the same time, . . . . . 83,473 49

Net earnings in less than 9 mos., \$125,826 51

The receipts of this railway for the last three years in the month of May, were,—

1845.	1846.	1847.
\$15,624 55	\$32,819 85	\$41,011 76

showing an increase of nearly *two hundred per cent.* in two years.

The number of passengers carried over that road in 1846, as furnished to me by the superintendent, J. W. Brookes, Esq., was 63,228; while in 1841 the number was less than 25,000. The net earnings are now 15 per cent., of which, however, but 7 per cent. is divided, the balance going to new construction account. This company are now making docks of great extent, and a freight depot, 800 feet in length, and 100 feet in width, at Detroit, for the accommodation of produce from the west.

The importance of these results will be appreciated by those who are conversant with the position and character of this work, which can only be regarded as a future tributary of your own, since it is the *direct* western continuation of your line, which will throw off this arm towards the Mississippi, while at the same time maintaining its connexion with the upper lakes by means of steamboats from Detroit and Port Sarnia. This central road is an extension already formed, and waiting only for the completion of the Great Western railway, to pour its treasures through that

channel; while another road, already chartered and surveyed, is projected from Port Huron to the mouth of Grand river—crossing the most fertile and highly cultivated portion of the State, abounding in water power and mineral wealth, and terminating on the shore of Lake Michigan directly opposite Milwaukee, the most flourishing town in the State of Wisconsin, which, at no distant day, will be an equally important tributary to the Port Sarnia branch.

There are railways likewise projected and authorized by law, intended to connect the Central railway with Chicago, Galena, and St. Louis, and there can be little doubt that ere many years these links will also be completed.

THE PONTIAC RAILWAY, terminating at Detroit, has been for some years in operation, and well filled passenger trains run each way daily, and during the season of navigation large quantities of grain and flour are brought over the road, from the interior of the State.

There has been a charter granted to construct a ship canal (one mile in length) around the Sault de St. Marie, of a size sufficient for the largest vessels and steamers on the lakes to pass. Its completion will open to commerce the wealth of Lake Superior, the largest of all the lakes in the great chain, and induce to the speedy settlement of the lands on its borders, and render its mines and fisheries tributary to the northern branches of your road.

THE ILLINOIS CANAL, connecting the Illinois river with Lake Michigan, at Chicago, will be ready for navigation next season. From its intersection with the Illinois river, that stream is navigable for large steamers, down to its junction with the Mississippi. The canal and the river will take in their sweep almost the entire business of the State of Illinois, and connect with the Mississippi at a point where they will command most of the trade of Iowa. This navigation is nearly certain also to attract much of the business of St. Louis, and the Upper Mississippi valley.

THE EASTERN TERMINUS of your road, is at Niagara river, (where it intersects the Erie and Ontario railway, now in operation) and connects with three several railways on the opposite shore by the suspension bridge, of which the construction is to be immediately commenced.

From this point there is now, as already stated, (on the American side,) a continuous railway, leading by the way of Buffalo, to Boston and the other eastern ports; another to Lewiston, on the navigable part of the Niagara river, where steamers ascend from Lake Ontario; a third, completed to Lockport on the Erie canal, and shortly to be extended in a direct line to the city of Rochester, and there connect with railways to Albany and Boston. On the opening of this important link, the distance from Albany to Niagara Falls will be reduced *twenty-two miles*, which will make it the same as the present distance from Albany to Buffalo.

A railway is also projected from Rochester city to Syracuse, along the line of the

Erie canal, on a route some 28 miles shorter than the existing line of railway between the same points.

A railway is also under contract from Syracuse to Oswego, on Lake Ontario, to be completed in the summer of 1848; and another line has been surveyed, to connect the railway at Rochester with the New York and Erie railway at Corning, on the Chemung river,—the construction of which will direct the travel passing from New York city over the latter road, and destined to Detroit, or west of that point, to Rochester and Niagara Falls, and thence westward by your line. By taking this route through West Canada, passengers for Detroit will *save one hundred and twenty-six miles*, even after the completion of the New York and Erie railway, and the entire line of projected road along the southern shores of Lake Erie.

*Sources of Business.*—It has already been seen, that the termini of this railway east and west are converging points where the population of New York, and the six New England States, moving *west*, and that of the States of Michigan, Illinois, Wisconsin, Iowa, portions of Indiana, and Missouri, the regions of the Upper Mississippi, and Lakes Huron and Superior, moving *east*, will be drawn upon its track: that at Hamilton, it takes the whole sweep of Lake Ontario, and the St. Lawrence, and will of necessity extend its attractive influence as far as the branches now in progress from Montreal to Portland, and Lake Champlain.

We have here a population of about *two and a half millions* in the west, composed chiefly of emigrants from the east,—whither nearly all their commercial business tends, —and over *six millions* in the east, which will find your road their most convenient route.

The intercourse between two and a half millions in the west, and six millions in the east,—numbers multiplying now more rapidly than ever,—a population bound together by political and commercial relations, and the ties of consanguinity, could scarcely fail to furnish a rich reward to the enterprise of those who can command their transportation.

But without relying upon conclusions drawn from such general facts, a prudent caution would suggest that we should look to actual results on the finished works that compose a large proportion of the great chain, of which your work will hereafter be the centre, and other statistics known to be authentic.

It has been shown that 63,228 passengers were carried over the Michigan Central railway, yet incomplete, in 1846. Add to this number the passengers *passing* Detroit in steamboats, in the same year, which, as reported by J. L. Barton, Esq., steamboat agent, was 260,000, and it appears that no less than 323,228 passengers were conveyed east and west in that year.

Now, when it is observed that the transit from Detroit to Buffalo, over the Great Western, and the Buffalo and Niagara Falls railways,—a distance of 250 miles,—can be made with comfort and safety in *nine hours*;

while from 24 to 36 hours are ordinarily consumed (in the most favorable weather) in the passage by steamboats, over a lake on which the navigation is deemed, by competent judges, more dangerous than that of the Atlantic, (see note C,) the conclusion cannot be resisted, that the greater part of this travel will be commanded by your line, even in the summer season: while, in winter, it will of necessity monopolize the whole intercourse between Canada and New York, and the north western states and territories.

It will be seen by reference to note D, (page 36,) that the line of railways from Niagara Falls to the Hudson river, conveyed in 1846, more than 90,000 through passengers, and yielded an average profit of ten per cent. on their aggregate cost.

Leaving out the two short railways east of Schenectady, which, in addition to their great cost, are rival lines, the profits on the residue was nearly twelve per cent.

The Great Western railway is to be the extension of those which now terminate at Buffalo. Its length is 228 miles. If we now take 228 miles on the line from Buffalo to the east, we find a net revenue in 1846, of \$555,000, and a dividend of nearly twelve per cent., actually earned upon that distance.

The value of these roads, however,—flattering as it appears,—cannot be regarded as a just criterion for the Great Western railway, which, while presenting a much more favorable location, smaller grades, and easier curvature, will concentrate the travel of these very lines at Niagara Falls, together with all that which will be brought by steamboats through Lake Ontario from Oswego, and that which will shortly pass from Portland by the way of Montreal; and from Vermont, New Hampshire, and Lake Champlain, by way of Ogdensburgh, upon the eastern end of your work.

And in addition to these objections to the application of the results obtained on the western portions of the railways from Albany to Buffalo, it is to be observed that the conveying of freight on this line is confined to the one-half of the year,—the most expensive for its transportation, and the exaction of canal tolls, even for this privilege. And, further, the Albany and Buffalo road has for a competitor, the packet and line boats on the Erie enlargement, which carry more passengers than the railway; while, at Syracuse, large numbers are drawn towards Lake Ontario at Oswego, from which port there is a daily line of large steamers to the Niagara river and Hamilton.

The passengers which avoid the railway from Syracuse to Buffalo, by taking the Erie canal, will find the Great Western railway the cheapest and quickest route to the west; and those which diverge from it towards Oswego, will also be drawn upon your work at the Falls or Hamilton.

**Freight from the West.**—On turning to the products of the west now seeking the markets in the east, we again find evidences of present wealth and future increase, equally gratifying and satisfactory.

In 1835 the states west of Lake Erie still

imported their provisions, which were principally conveyed to them through the Erie canal.

In 1846 the exports from the west which passed through Buffalo, were:—

Flour, - - -	1,280,897 barrels.
Wheat, - - -	3,611,224 bushels.
Corn, - - -	1,179,680 "
Beef and pork, - - -	99,398 barrels.
Equal to 290,000 tons.	

This is independent of the traffic of the Welland canal, through which, during the same year, passed from the west:—

Flour, - - -	273,284 barrels.
Wheat, - - -	3,173,969 bushels.
Corn, - - -	461,933 "
Beef and pork, - - -	34,211 barrels.

The entire amount of flour, wheat, and other grain exported by the western states, through Lake Erie, in 1846, for Canada and the eastern markets, reduced to bushels, would exceed fifteen million of bushels, or 450,000 tons.

Of these exports, 781,141 barrels of flour, and 744,379 bushels of wheat, were sent from the State of Michigan, and more than half of this quantity was shipped from the port of Detroit, while a large proportion of the balance was carried from ports west of Detroit, directly past the two western termini of your road.

It is almost impossible to arrive at the entire amount of the commerce of the western or upper lakes, but sufficient authentic facts have been ascertained to show that it is already very great, and is now increasing in an unprecedented ratio. (See note E.)

The value of the exports from the port of Detroit, going east, in 1846, was \$2,495,336, and of the exports from Buffalo, going west, the same year, was \$23,199,665, and amounted to 154,761 tons.

**Way Traffic.**—The sources of through traffic only, have yet been considered.

The completion of the Great Western railway will entirely change the channel of trade and commerce, open new sources of business, and add greatly to the wealth and population of the immediate districts through which it passes, comprising more than 850,000 acres of well cultivated land, well adapted to the raising of wheat and maize, which are now extensively grown. Inexhaustible beds of gypsum and lime are found along the line of the road, and can be profitably transported to the west for a market.

The districts actually traversed by this work, contain a present population of 220,000, which for some years has been increasing at the rate of ten per cent. per annum.

At one end of the line, is the flourishing city of Detroit, with 15,000 inhabitants; at the opposite end, the great attraction of Niagara Falls, drawing its thousands of annual visitors, at the head of Lake Ontario, the city of Hamilton, with a population of 8,000 souls, increasing at the rate of 100 per cent. in five years; while the whole line is dotted with flourishing towns, more frequent and populous than those on the railways from Rochester to Buffalo.

Water power abounds along the line, which

it will be seen, by note (F) has been already greatly improved, and will of course be further developed by the completion of this road.

Plank and McAdam roads have been constructed by the "Board of works," to the extent of several hundred miles, converging generally towards the line adopted for this improvement, and over which large quantities of produce and lumber are drawn from great distances, to reach a market.

It will be observed by referring to note (G) that the exports from the port of Hamilton and through the Welland canal amount to a large quantity, and are greatly on the increase. From the port of Hamilton there was exported,

In 1845, 119,388 barrels of flour,	
In 1846, 155,298 " "	
And to July, 1847, 136,090 " "	

Total in 2½ years, 410,776 " "

**Cost of Transportation.**—The great bulk of the freight which will pass over your road will consist of the products of the west seeking the eastern markets.

The whole length of line from Detroit to the port of Hamilton being 185 miles, freight trains may make the transit at the speed dictated by true economy—not exceeding eight miles an hour—in 24 hours. They may make their trips with the produce of the upper lakes, from Port Sarnia to lake Ontario, (133 miles) at the same speed in 18 hours.

Now, the distance from this latter point—Port Sarnia—to lake Ontario near Hamilton, by the way of lake Erie and the Welland canal, is over 430 miles, or more than three times as great, and consumes an average time by steam propellers, of from four to five days, and double that time by sailing craft.

The cost of freight on flour carried from Port Sarnia to the mouth of the Welland canal, for the last two seasons, has not been less than 25 cents per barrel.

But it is well known that flour has been carried from Albany to Boston, 200 miles, over the Western road, where there are grades of 83 feet per mile, for 25 and 30 cents per barrel. And on this road, over such grades, with the Hudson river for a competitor, no less than 231,920 barrels were carried through to Boston, and 163,919 barrels to other stations on the line, in 1846, or nearly 25 per cent. more than was carried in 1845. (See note H.)

Can it then be doubted, that when the flour which is now flowing through the Welland canal in quantities almost sufficient to block up that channel, can be carried between the same points in little over one-fourth the distance, and in the tenth part of the time, required by the water route, and over grades of but 20 feet per mile, that the railway will have an ample share? And if flour is carried 200 miles on the Western railway, over 83 feet grades, for 30 cents, may it not be taken with great profit, 133 miles, over grades of 20 feet, at a much smaller price?

In fact, an analysis of the grades and curvatures of your railway, and those of the road alluded to, will show, that a locomotive which will convey 100 tons from Port Sar-



nia or Detroit, to lake Ontario, can draw but 43 tons from Albany to Boston, at the same speed; and, therefore, if 30 cents will meet the bare cost of conveyance on that work, 15 cents from Sarnia, or 20 cents from Detroit, will pay a good profit on yours.

Let it here be kept in view that next season all the ship canals around the rapids of the St. Lawrence river, will be completed, so as to permit steamers and ships of over 400 tons burden, to clear at Hamilton for any foreign port.

I would now invite your attention to the map accompanying this report, exhibiting your work with its branches and connections, and ask by what route the trade of Michigan and all the northern lakes, can pass to the ocean, as direct, convenient or cheap, as from Detroit or Sarnia by your road to the shipping port of Hamilton, and thence, without breaking bulk, by lake Ontario and the St. Lawrence to European markets.

And in connection with this route, I ask you to look at the vast shipments of grain through the Welland and Erie canals, from a country, which, ten years ago, imported a great part of the food of its inhabitants, and then judge—not what it will be ten years hence, when the hundred thousand annual emigrants now filling up the fertile regions of the "FAR WEST," shall have been changed from consumers to producers, and have begun to send off their surplus products—but what will now be the profits of your road if you obtain but a small portion even of the present trade.

Eighty thousand emigrants have already this year reached Montreal, in vessels from Europe, and in consequence of a small link in the chain of ship canals around the rapids being incomplete, (which will be finished in a few months) they are there transhipped, and ascend the St. Lawrence in steamboats and propellers.

Next season these vessels may proceed directly to Hamilton, and there discharge their passengers, and load with flour for Europe, while the emigrants can be carried westward in the return freight trains, at a very low price.

There can, under the circumstances, be no question of the ability of your road to command an abundant share of through freight. There can, in my estimation, be as little doubt of its successful competition even for that portion of the long travel for which economy is a more important element than comfort or expedition.

The through passengers who seek comfort or speed, will of course take the railways to Niagara Falls, and thence to Detroit, on your line, and avoid the loss of time and dangers of the passage over lake Erie.

Those whose choice is controlled by economy of money, and not by time, will decide at Syracuse between the railways to Buffalo, and the steamers to Detroit, on the one hand, and the railway to Oswego, steamers to Hamilton, and your road to Detroit on the other.

By the former route they will pass over  
179 miles of railway, and  
303 miles of lake navigation;  
By the latter, they will pass over

220 miles of railway, and  
160 miles of lake navigation;  
making a difference against your route of 41 miles of railway, and in its favor of 202 miles of water conveyance, or a saving in the aggregate of 161 miles of distance, or 44 per cent. on the shorter route. Can it then be doubted that the main line of travel, also, will set through the shortest channel? (See note I.

*Of the Probable Revenue.*—How shall we estimate the probable revenue of a work like the Great Western railway, to which there is nothing analogous in the history of the internal improvements on this continent?

It bears no resemblance to the railways in the States, which usually run from a seaport into the interior, and may be compared with similar works, by a comparison of the population and productiveness of the adjacent country.

*Yours* crosses a peninsula where, at one end, the products and travel of hundreds of thousands of square miles, are compelled by nature to concentrate at a single point, at the head of lake Erie; and at the opposite extremity, the merchandize and other objects of transportation are forced to converge by numerous natural and artificial channels, to an other similar point, the head of lake Ontario. Here quantities of trade and travel, unequalled elsewhere, when thus concentrated, *must*, during one half of the year, pass over this line—all other channels being closed by frost—and during the remainder, choose between the safe, cheap and direct route of your road, and the dangerous, more expensive, and circuitous passage over lake Erie.

It will be remembered that the roads leading from Albany to Niagara Falls, in 1846, earned 10 per cent. on their capital, notwithstanding the restrictions of their charters;—while the Michigan road, on the other end of your line, earned 15 per cent. on its cost.

It will also be remembered, that 200,000 persons last year passed Detroit in steamboats during the season of navigation; and that during the same period, there was exported from ports west of your railway, 3,000,000 barrels of flour, and over 5,000,000 bushels of wheat and corn.

There can be no doubt, then, that there is, and will ever be, abundance of freight and travel to transport, and it has been already shown, I think, that your route offers the greatest economy of time and money.

It seems, therefore, only important to inquire into the capacity of the Great Western railway, for the accommodation of this vast business.

I have already stated, that there is no ascending grade on the lines from the western termini of the road, to the head of lake Ontario, exceeding 20 feet per mile. On grades of this inclination, freight engines of the class now generally used, will draw a gross load of 400 tons, or trains containing 250 tons of merchandize, at a speed of six miles per hour.

If such a train were started from each end of the line once a day, they might pass in the centre, and carry 500 tons through daily—which would be equivalent to 182,500 tons

annually, or nearly equal to two millions barrels of flour. If such a train were started from each end every 12 hours, there would be required but three places of meeting, and the annual transport would be 365,000 tons.

It is not necessary to pursue this subject, for the quantity transported by two such daily lines, would be nearly four times as great as that conveyed by the Western railway in Massachusetts, in 1846, which, though an unusually costly line, pays fair dividends.

For the transportation of passengers on a road like yours, there can scarcely be a limit to its capacity.

Having endeavored to exhibit briefly the most prominent sources of business on which your railway is to depend for its support, I do not deem it necessary to enter into any speculative estimate of the quantities which it will command, or the profits which it will yield. But it can be confidently asserted, that there is no process of estimating its business results, based upon the foregoing facts, or the experience of other works of internal improvement, which will not justify all that need be claimed.

It is not my wish to make extravagant estimates of the future business of your road, or to excite unreasonable hopes of gain.

But it may, however, be useful to ascertain the number of passengers, and the amount of freight it would require at moderate charges, to support this railway.

If, then, there should be of through passengers of the first class, an average number of 100 each way daily, at two cents per mile, and of second class of through passengers, half this number daily, at one cent per mile, the yearly receipts would be \$116,000

If the way passengers should equal 50 per day each way, at 2½ cents a mile (half way) the receipts from that source would be 104,000

If the emigrants should equal 200 per day for one-half the year, at one dollar each from lake Ontario to Detroit or Port Sarnia, the receipts would amount to 36,500

Should 500,000 barrels of flour only, be carried from Detroit to Hamilton, at 20 cents per barrel, it would add to the receipts 100,000

And if the through and way freight reached only 50,000 tons, (or half a full train per day,) the yearly receipts would be, at 2 cts. per ton per mile, 228,000

Say for mails and express, 15,500

And we obtain a total of, \$900,000

Deduct from this amount 38 per cent., the average expense of the railways from Albany to Buffalo, last year, (see note D) and we have for expenses 342,000

Leaving a net revenue of, \$558,000 or £139,500, equivalent to ten per cent. on the estimated cost of the work, and over nine per cent. on the capital stock of six millions of dollars.

Having exhibited as briefly as possible the

sources from which the Great Western railway is to derive its support, the characteristics of the line of location, and the method of construction recommended, and having estimated with great care and caution the probable cost of the improvement, I now have the satisfaction to report, that the accuracy of my estimates has been fully confirmed by the judgment of experienced and responsible parties, who have contracted for the graduation and masonry of the entire Eastern Division, at prices lower than the estimate, with an agreement to take 25 per cent. of the sum to which the contract will amount, in the company's stock.

In accordance with a subsequent resolution of your board, I have advertised the Western Division, extending from London to Windsor, 110 miles, and the Port Sarnia branch, 50 miles, to be let on the 1st of October. I doubt not that all this work will be taken on terms equally advantageous and satisfactory.

With the highest confidence in the success of an enterprise which it has been my duty to examine closely, and with full assurance that its achievement will be the signal of a great change in the direction of the trade and travel of the west, of immense importance to this province, as well as to the adjacent States, I cannot but urge its immediate and vigorous prosecution to completion.

I have the honor to be, gentlemen,

Your obedient servant,

CHARLES B. STUART,

Chief Engineer.

Engineer's office, Gt. Western Railway, }  
Hamilton City, September, 1st, 1847. }

**Pennsylvania the Pioneer in Internal Improvements.**  
*The Coal and Iron Trade of Pennsylvania in 1847.*  
Continued from page 584.

Having given a brief review of the Iron Trade in Europe, we return to the history of this trade in the UNITED STATES, and more particularly to that of Pennsylvania.

In Seybert's Statistics, prepared from official documents, he states that the manufacture of iron in the United States in 1810, was as follows: 153 furnaces, making 53,908 tons of iron; 320 forges, making 24,541 tons of bar iron; 316 trip hammers, and 34 rolling and slitting mills, which required 6,500 tons of iron, and 410 naileries, in which 15,727,914 pounds of nails had been made. The value of these manufactures was \$11,361,526.

In 1818, there were in Pennsylvania 44 blast furnaces, 68 forges and 175 naileries.

In 1830, a convention of manufacturers of iron was held in Philadelphia, for the purpose of collecting information in answer to a call made upon the secretary of the treasury. They prepared the following statement, which is believed to be as precise and accurate as any statement in reference to this trade, ever laid before the public.

"The committee on manufactures of iron appointed by the convention, assembled at Philadelphia, to examine the returns received in answer to the circulars addressed to different individuals engaged in that branch of industry, report the following tabular statement as the result of their investigations:

States.	1828.		
	Furnaces.	Pig iron.	Castings.
Pennsylvania, No. 44	24,822	3,693 tons.	
New Jersey,	11	1,733	6,264 "
Maryland,	5	2,247	483 "
Virginia,	2	400	50 "
Delaware,	1	450	350 "
Ohio,			
Missouri,			

Total,	63	29,652	10,840 "
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	1830.		
	Furnaces.	Pig iron.	Castings.
Pennsylvania,	45	31,056	5,506 tons.
New Jersey,	10	1,671	5,615 "
Maryland,	6	3,163	1,259 "
Virginia,	2	538	43 "
Ohio,	7	5,400	250 "
Delaware,	1	450	350 "
Missouri,	2	590	250 "

Total,	73	42,868	13,273 "
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One furnace erected in Pennsylvania in 1830, will in 1831, make 1,100 tons of pig iron.

In addition to the 73 furnaces mentioned in the preceding table, from which detailed returns had been received, the committee had information of 129 furnaces, in the States of Pennsylvania, New York, Vermont, Massachusetts, Connecticut, Tennessee, N. Hampshire, Virginia and Ohio, in actual operation, but from them had then received no returns. Taking the production of the 73 furnaces from which returns have been received, as the rate for estimating the whole, and the following would be the result:

Years.	Furnaces.	Pig iron.	Castings.	Total.
	Number.	tons.	tons.	tons.
1828,	192	90,368	33,036	123,404
1830,	202	118,620	36,728	155,348

But as the greater part of the furnaces, not included in the returns, are situated in districts where but few castings are made, the committee have not felt authorised to estimate the quantity of castings made at them at more than about five per cent. of their entire production, which would give the following proportions and results:

Years.	Furnaces.	Pig iron.	Castings.	Total.
	Number.	tons.	tons.	tons.
1828,	192	108,564	14,840	123,404
1830,	202	137,075	18,273	155,348

From the best information the committee have been able to collect on this subject, they estimate that of the pig iron made in these years, about 10,000 tons per annum have, upon an average, been converted in the air furnaces and cupolas, into castings, leaving to be manufactured into bar iron.

In 1828, of pig iron 98,564 tons, making of bars 70,403 tons.

In 1830, of pig iron 127,045 tons, making of bars 90,768 tons.

And which quantities severally correspond with remarkable proportional accuracy with the returns from 132 forges, which accompanied the returns from the 73 furnaces first mentioned. In East Jersey, in a part of Connecticut, in a large district of New York and in Vermont, bar iron is extensively made by the process technically denominated "blooming," or by a single operation from

the ore, without the intervention of the blast furnace. The returns already received, justify the committee in putting down this description of bar iron, for the year 1828, at 5341 tons; 1830, 5853 do.; of which 2197 tons are in East Jersey, making a total of bar iron for 1828, of 75,744 tons; 1830, 96,621 do.; and the entire quantity of iron, in its first stage, as shown in the following table:

	1828.	1830.
	tons.	tons.
Pig iron,	108,564	137,075
Castings from blast furnaces,	14,840	18,273
Blooming bar iron, for the years respectively, reduced to pig iron, at 28 cwt. to the ton of bar,	7,477	8,194

Total iron in pigs and castings,	130,881	163,542
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Total increase of all kinds of iron in two years, very nearly 25 per cent.

For the purpose of determining the value of the above iron, the committee have taken the average prices of the principal sea ports, and those of Pittsburgh and Cincinnati, and have estimated that two-thirds of the bar iron made in the United States is sold in the western markets. The proportion may be greater, which would increase the entire value.

In 1828, the average price of American hammered iron, in the principal cities east of the Susquehanna, was \$105, and at Pittsburgh and Cincinnati, \$125; the average, estimated as above, would be \$118 $\frac{1}{4}$ . In 1830, the prices were 90 and \$100, giving an average of 96 $\frac{1}{4}$ . Castings from the blast furnace are valued at sixty dollars, although many sell higher; and from the furnace and cupola at 4 $\frac{1}{2}$  cents per pound, which is certainly not above the average rate.

At these prices the aggregate value of the iron made in 1828 would be \$10,861,440.

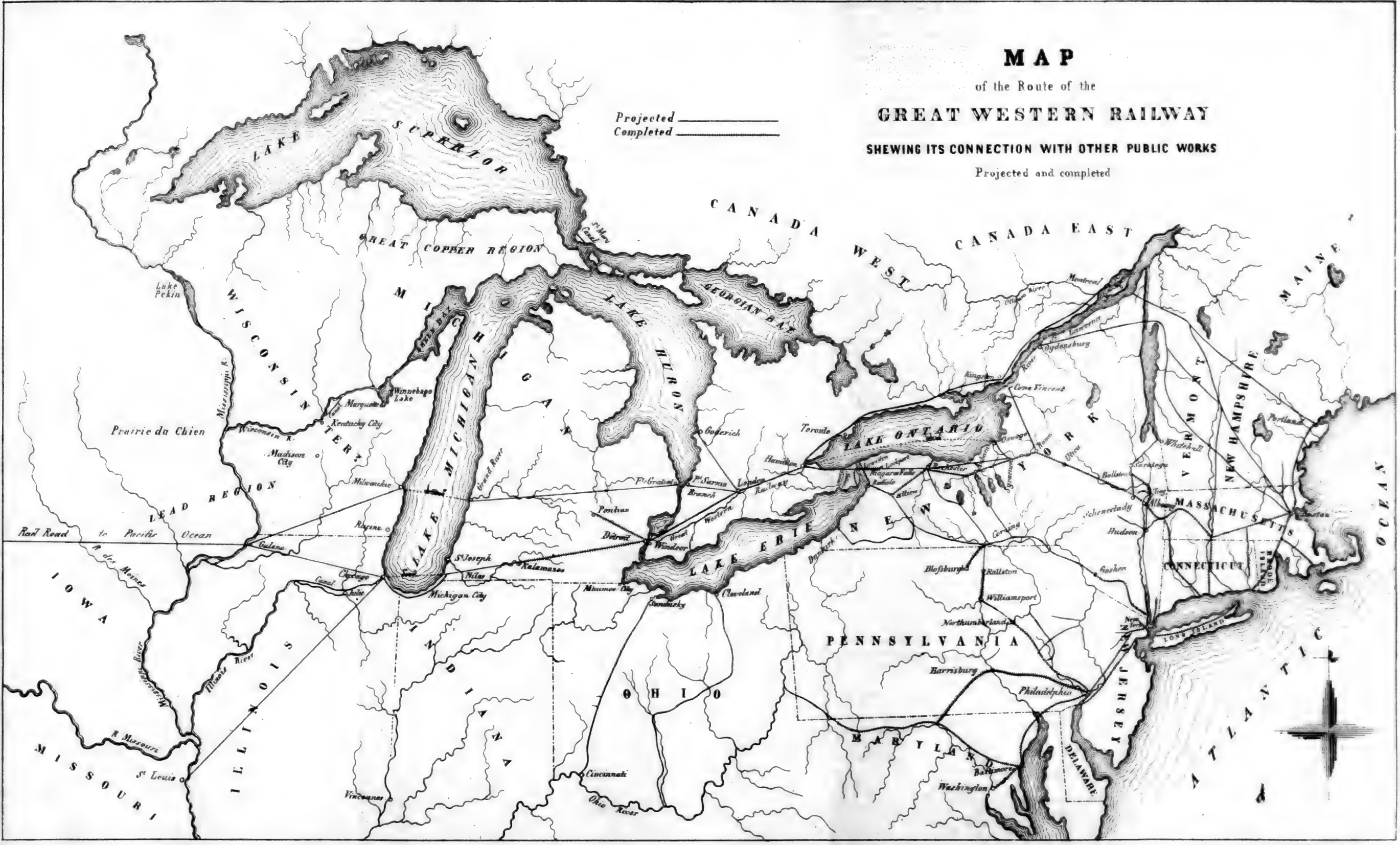
1830	11,444,410.
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Increase in market value in two years less than 5 $\frac{1}{2}$  per cent."

We are now, therefore, led by a natural transition in this historical sketch, to give an account of the iron interest of Pennsylvania. In doing this, we shall, of course, give prominence to the anthracite iron manufacture, because in this department our State enjoys unrivalled, and almost exclusive advantages. We are so fortunate as to have obtained copious statistics, showing the wonderful progress and present extent of this branch of business in this State; and the exhibition which we shall be enabled to make, will convince our readers that, if it were not insufferably vain in any State of our sisterhood to assume the title of Empire, such priority would clearly belong to Pennsylvania.

We commence with a statement which we have prepared from the United States census of 1840. It is to be regretted that the statistics in that census are far from being of a satisfactory character; incompetent persons having been employed to obtain them. But as we have nothing more authentic for that date, we resort to the census, as affording information which may be considered as at least a basis for a general estimate.





**MAP**  
of the Route of the  
**GREAT WESTERN RAILWAY**  
SHEWING ITS CONNECTION WITH OTHER PUBLIC WORKS  
Projected and completed

Projected \_\_\_\_\_  
Completed \_\_\_\_\_

Name of County.	Cast Iron.		Bar Iron.		Fuel.	No. of men employed, including mining operations.	Capital invested.
	Number of Furnaces.	Tons produced.	No. of bloomeries, forges and rolling mills.	Tons produced.			
Adams....	3	50	.....	40	10	\$10000	
Allegheny	28	6584	12	28100	74187	1305	1931000
Armstrong	3	1034	.....	.....	1052	141	48000
Beaver....	4	260	.....	.....	201	28	30000
Bedford....	9	7765	2	8308	14497	821	253000
Berks....	11	8220	36	6569	42245	1185	655644
Bradford....	2	45	.....	.....	20	8	1800
Butler....	3	625	.....	.....	1175	25	16500
Centre....	7	7500	9	10110	20400	603	398000
Chester....	3	1619	10	2031	8677	245	198000
Clinton....	2	1692	4	663	10598	905	360000
Clearfield.	1	.....	.....	.....	.....	.....	.....
Columbia	2	1300	.....	.....	2000	80	80000
Crawford.	2	100	.....	.....	125	10	7500
Cumberland	6	2830	5	2150	10600	400	110000
Dauphin...	3	3000	3	466	5537	224	120000
Delaware...	1	100	.....	.....	150	12	20000
Erie.....	1	100	.....	.....	150	20	15000
Fayette....	9	1800	3	703	4050	292	70000
Franklin...	8	3810	11	1125	8653	518	258500
Hunting'n	20	13855	27	14093	39367	1357	780100
Indiana....	1	80	1	30	170	19	18000
Lancaster.	11	6912	14	2090	16525	784	420500
Lebanon...	3	3020	3	297	6108	231	233000
Lehigh....	1	600	1	3000	4714	93	20500
Luzerne...	6	870	1	86	955	88	43000
Lycoming...	4	600	3	270	1230	125	283000
Mercer....	4	59	.....	.....	26	11	4712
Mifflin....	4	1904	2	600	3365	297	144500
Monong'my	4	1150	5	640	17200	244	100000
North'a'pn	6	3523	4	910	6227	164	95000
Perry....	8	2951	2	1300	16152	339	203150
Philadelp.	3	287	1	17.2	4650	25	314050
Schuylkill	4	2109	3	365	8942	138	107000
Somerset...	1	.....	1	20	50	9	1000
Union....	2	355	1	150	427	39	22000
Venango...	16	6546	1	208	10120	463	232000
Warren....	3	30	.....	.....	18	7	3360
York.....	4	5113	4	1118	15200	305	73655
Total....	913	98396	169	87244	355903	11522	7751470

In November, 1831, the friends of domestic industry held a convention in the city of New York, and in making their report on the iron trade, availed themselves of the information furnished by the Philadelphia convention of 1830, which they pronounced "as precise and accurate as any that had been submitted to the public." They added some new information, of which we take several items. In 1828 an addition was made to the duty on hammered iron, of \$4 40 per ton, and on rolled iron of \$7. In the following year the price fell to \$114, and in 1830 to \$96½ per ton; showing a decrease, in two years, of \$21½ per ton, in consequence of competition here; for there was no corresponding decline abroad. The prices of iron at Pittsburgh and Cincinnati at different periods, furnish data for important inferences. In the years 1818, '19, '20, bar iron in Pittsburgh was sold at from 190 to \$200 per ton. In 1831 the price was \$100 per ton. In '20 axes were \$24 per dozen; in '31, \$12. At least 600 tons of iron made in Pittsburgh, were manufactured in 1831, into various articles in that city. There were then eight

rolling and slitting mills in Pittsburgh. Thirty-eight new furnaces had been erected since 1824, in the western parts of Pennsylvania, and that part of Kentucky bordering on the Ohio river. The quantity of iron rolled in Pittsburgh was, in

1828,	3,291 tons.
1829,	6,217 "
1830,	9,282 "

Being an increase of nearly 200 per cent. in two years.

In Cincinnati, in 1814 to 1818, bar iron ranged from 200 to \$220 per ton. In

1826, bar iron assorted brought 125 to \$135  
1828, " " 115 to 125  
1831, " " 100 to 110

In 1842, when the great tariff question was occupying a large share of the public attention, a convention of iron masters assembled at Harrisburgh. Committees from various parts of the State prepared, with great labor, a mass of valuable information relating to the iron manufacture, showing the number and product of the iron works in Pennsylvania at that time, the number of hands employed, and the consumption of various articles of produce and merchandize in consequence of these operations. The intention was to show the effect of the prosperity of our manufactures in creating a home market. These results were embodied in an interesting tabular statement, and were furnished by the convention to the Commercial List for publication, and appeared in our paper of April 2, 1842. The demand for this information continuing, in 1844 we re-published the statement. In an editorial notice, under the former date, we stated that 172 works had already furnished their returns, and from 215 other works the product was estimated. These returns were embodied in the table, which we again re-publish.

The discovery of the anthracite process of smelting iron ore, was, as we have already remarked, an event of the highest importance to Pennsylvania. On the 18th of January, 1840, a dinner was given at Pottsville, by W. Lyman, Esq., on the occasion of his having successfully introduced this process. At that dinner, Nicholas Biddle, of this city, made the following forcible and appropriate remarks, which will be responded to by every true Pennsylvanian:

"And this, after all, is the great mystery, the substitution of what is called the hot blast for the cold blast. Let us see the changes which this simple discovery are destined to make. As long as the iron ores and the coal of the anthracite region were incapable of fusion, the ores were entirely useless, and the coal nearly unavailable for manufactures—while, as the disappearance of the timber made charcoal very expensive, the iron of Eastern Pennsylvania was comparatively small in quantity, and high in price, and the defective communications with the interior, made its transportation very costly. The result was, that with all the materials of supplying iron in our own hands, the country has been obliged to pay enormous sums to Europeans for this necessary. In two years

alone, 1836-37, the importations of iron and steel amounted to upwards of twenty-four millions of dollars. The importations for the last five years have been about forty-nine millions of dollars. It is especially mortifying to see that even in Pennsylvania, there has been introduced within the last seven years, exclusive of hardware and cutlery, nearly 80,000 tons of railroad iron, costing probably three millions and a half of dollars. Nay, this very day, in visiting your mines, we saw at the farthest depths of these subterranean passages, that the very coal and iron were brought to the mouth of the mines on rail tracks of British iron, manufactured in Britain, and sent to us from a distance of 3000 miles. This dependence is deplorable. It ought to cease forever, and let us hope that with the new power this day acquired, we shall rescue ourselves hereafter, from such a costly humiliation.

"We owe it to ourselves, not thus to throw away the bounties of Providence which in these very materials has blessed us with a profusion wholly unknown elsewhere. The United States contains, according to the best estimates, not less than 80,000 square miles of coal, which is about sixteen times as much as the coal measures of all Europe. A single one of these gigantic masses runs about 900 miles from Pennsylvania to Alabama, and must itself embrace 50,000 square miles, equal to the whole surface of England proper. Confining ourselves to Pennsylvania alone, out of fifty-four counties of the State, no less than thirty have coal and iron in them. Of 44,000 square miles which form the area of Pennsylvania, there are 10,000 miles of coal and iron, while Great Britain and Ireland have only 2000; so that Pennsylvania has five times as much coal and iron as the country to which we annually pay eight or ten millions of dollars for iron.

"Again, the anthracite coal fields of Pennsylvania, are six or eight times as large as those of South Wales. Of these great masses it may be said confidently that the coal and the iron are at least as rich in quality and abundant in quantity as those of Great Britain, with this most material distinction in their favor, that they lie above the water level, and are easily accessible, while many of the mines of England are a thousand or fifteen hundred feet below the surface. With these resources you would have abundant employment, if you could only supply the present wants of the country, for which we are now dependent upon foreigners. But the sphere of demand is every day widening for the consumption of iron. The time has come when nothing but iron roads will satisfy the impatience of travellers and the competition of trade.

"If coal and iron have made Great Britain what she is, if this has given her the power of 400,000,000 of men, and impelled the manufactures which have made us, like the rest of the world, her debtors, why should not we, with at least equal advantages, make them the instruments of our own independence?"



**NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Treasurer's Office in Waterville, until the 25th of September next, inclusive, for the Grading and Masonry of the 3d Division of this road, extending from East Readfield to Waterville, about 20 miles.

Also, for such sections of the 2d Division as shall not be previously disposed of.

Profiles will be ready for examination on the 20th of September, and any information respecting the line can be obtained on application to the resident Engineers.

On the 24th of September the Engineer will be at Winthrop, and will be prepared to accompany contractors over the line of the road.

HOBART CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office Lewiston, }  
August 25th, 1847. } 3137

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847. 2m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLUM.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**SPRING STEEL FOR LOCOMOTIVES.** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**RAILROAD IRON.—400 TONS ENGLISH.** 60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,  
68 Broad Street, New York.

**FOR SALE.—300 TONS (10 MILES) FLAT** Bar Rail, in parcels or wholesale—section 2 1/2 inches wide by 1/2 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,  
Wilmington, Del.

**RAILROAD IRON.—500 TONS OF BEST** quality Bridge Rails, 53 pounds to the yard, to arrive, and for sale by A. & G. RALSTON,

No. 4 South Front Street, Philadelphia.

Also, a 2-hand Locomotive Engine, of Baldwin's make, for sale low.  
September 8, 1847. 3137

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

#### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sierns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Meritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

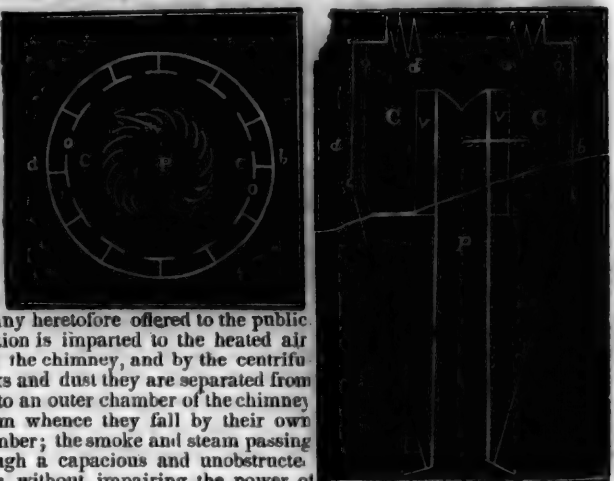
#### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

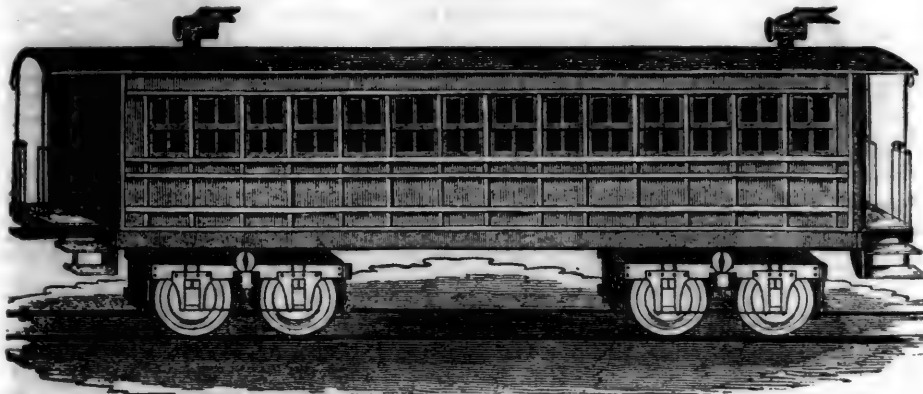
Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
ja45 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

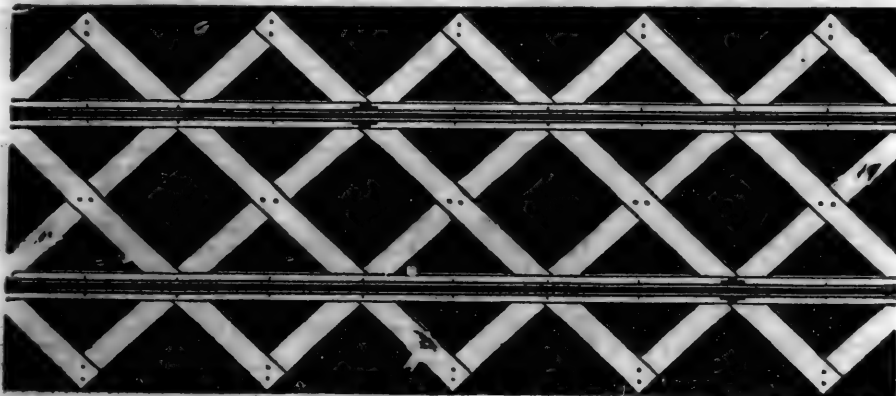


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4 1/2 cts =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

### LAP-WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

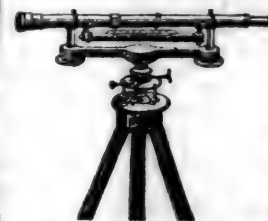
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



Road Depots, etc.

West Troy, May 12, 1847.

**ANDREW MENEELY.**

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**

124f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

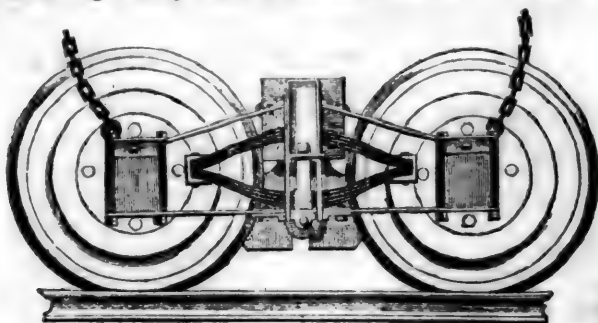
For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,**

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

1y46

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.  
To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power.

**THE SUBSCRIBERS, AGENTS FOR** the sale of

Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MAN**

ufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
a45 N. E. cor. 19th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents.

No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10f

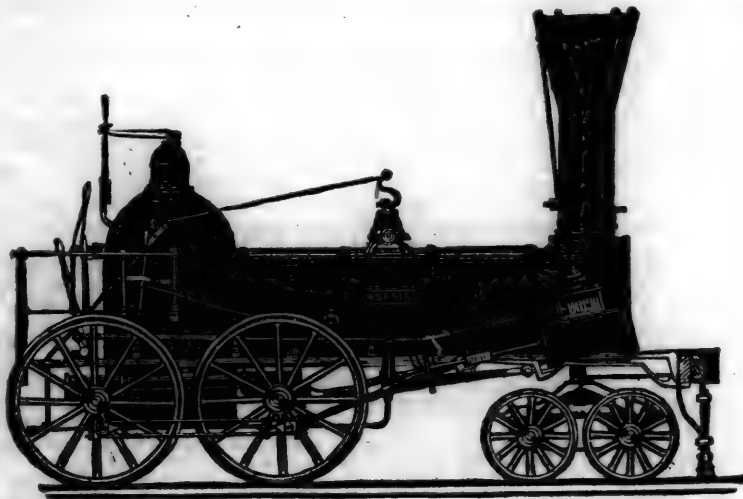
**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
1y10 New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 106 Chestnut street.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, cash from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** 4 South Front St., Philadelphia. Mar. 20th

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28th

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drifts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11th

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK &amp; CO., Philadelphia.

ROBERT NICHOLS, Agent, No. 79 Water St., New York.

26th

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 6 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,** Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11th

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28th

J. BALL &amp; CO.

**DAY, CROSKY & ROSS,** COMMISSION MERCHANTS, 57 THREADNEEDLE STREET, LONDON. 13 ORCHARD PLACE, SOUTHAMPTON. SHIPPING & COMMISSION AGENTS

FOR PASSENGERS, SPECIE, GOODS, PARCELS, etc. To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—**

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co.'s daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City. via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	.....\$1 00
" " " Xenia	.....1 50
" " " Springfield	.....2 00
" " " Columbus	.....4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47th W. H. CLEMENT, Sup't.

**PATERSON RAILROAD****Summer Arrangement.**

Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/2 o'clock a.m.	12 1-4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/2 o'clock a.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

25th Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 1/2 and Cumorand at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 1371

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at	.....9 a.m. and 3 1/2 p.m.
Arrives at	.....9 a.m. and 6 1/2 p.m.
Leaves York at	.....5 a.m. and 3 p.m.
Arrives at	.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at	.....1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at	.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	.....\$1 50
" Wrightsville	.....2 00
" Columbia	.....2 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg

Or via Lancaster by railroad

Through tickets to Harrisburg or Gettysburg

In connection with the afternoon train at 3 1/2 o'clock,

a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5 1/2 p.m.

Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 1/2 Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lex-

ington daily, at 8 o'clock a.m. and 2 p.m. Distance,

28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from

Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to

15th March) is 6 o'clock a.m. from Lexington, and

ma. 9. from Frankfort, other hours as above. 351

**CENTRAL AND MACON AND WEST-**

Cern Railroads, Ga.—These Roads with the

Western and Atlantic Railroad

of the State of Georgia, form a

continuous line from Savannah to Oothcaloga, Ga.,

of 371 miles, viz:

Savannah to Macon—Central Railroad

Macon to Atlanta—Macon and Western

Atlanta to Oothcaloga—Western and Atlantic

Goods will be carried from Savannah to Atlanta

and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee,

Liquor, Bagging, Rope,

Butter, Cheese, Tobacco,

Leather, Hides, Cotton

Yarns, Copper, Tin, Bar &

Sheet Iron, Hollow Ware &

Castings

Flour, Rice, Bacon in Casks

or boxes, Pork, Beef, Fish,

Lard, Tallow, Beeswax, Mill

Gearing, Pig Iron and Grind

Stones

On Measurement Goods—Boxes

of Hats, Bonnets and Fur-

niture, per cubic foot

Boxes and Bales of Dry Goods,

Saddlery, Glass, Paints,

Drugs and Confectionary,

per cubic foot

Crockery, per cubic foot

Molasses and Oil, per bhd.,

(smaller casks in proportion).

Ploughs, (large,) Cultivators,

Corn Shellers, and Straw

Cutters, each

Ploughs, (small,) and Wheel-

barrows

Salt, per Liverpool Sack

Passage—Savannah to Atlanta, \$10; Children,

under 12 years of age, half price,

Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, Aug. 15th, 1846.

**CENTRAL RAILROAD—FROM SAVAN-**

nah to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$5 00. Freight—

On weight goods generally

On measurement goods

On brls. wet (except molasses

and oil)

On brls. dry (except lime)

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery

On hhd. and pipes of liquor,

not over 120 gallons

On molasses and oil

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlan-

tic Railroads—and by stage lines and steamers connects

with the Montgomery and West Point, and

the Tusculumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily

Fare through from Charleston to Huntsville,

Decatur and Tusculumbia

The South Carolina Railroad Co. engage to re-

ceive merchandize consigned to their order, and to

forward the same to any point on their road; and to

the different stations on the Georgia and Western

and Atlantic railroad; and to Montgomery, Ala., by

the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects

daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly

line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tusculumbia, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga

for Chattanooga, Jasper, Murfreesborough, Knox-

ville and Nashville, Tennessee.

This is the most expeditious route from the east to

any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

**NEW YORK AND PHILADELPHIA RAIL-**

road line—direct. Via Newark, New Bruns-

wick, Princeton, Trenton,

and Bristol. (Through in

six hours.) Leaving New York daily from the foot

of Liberty street.

Morning line

Mail pilot line

The lines proceed direct to Bristol without change

of cars, and thence by the new steamer, "John Ste-

vens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars

Second class cars

Passengers will procure their Tickets at the office

foot of Liberty st., where a commodious steamboat

will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each

passenger in this line, and passengers are expressly

prohibited from taking anything as baggage but

their wearing apparel, which will be at the risk of

the owner.

Philadelphia Baggage-crates are conveyed from

city to city, without being opened by the way. Each

train is provided with a car, in which are apart-

ments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the

foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily,

except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sun-

days only at 10 p.m.—being a continuation of the

line from New York.



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50 and	\$3 00
" " Reading,	58	2 25 and	1 90
" " Pottsville	34	1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81f

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.

Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3 p.m. } No line on Sun-

Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.

m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE,

21f Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA.—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a con-

tinuous line, 408 miles in length, from Charleston

to Dalton (Cross Plains) in Murray county, Ga.—

32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston, and Dalton.
	271 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 93
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows... 0 75		1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Supt. of Transportation.

Augusta, Ga., July 15, 1847. 41\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 22 1/2	1 54	1 05	0 81	0 86
Between Macon and Knoxville & intermediate points.	0 22 1/2	1 54	1 10	0 76	0 81
Between Macon and Chattanooga.				0 61	
Between Augusta and Decatur and intermediate points.	80 24	1 70	1 15	0 85	0 90
Between Augusta and Knoxville & intermediate points.	80 24	1 70	1 20	0 80	0 85
Between Augusta and Chattanooga.				0 65	
Between Charleston or Savannah and Decatur and intermediate points.	80 32	2 20	1 40	1 05	1 10
Between Charleston or Savannah and Knoxville & intermediate points.	80 32	2 20	1 40	1 00	1 05
Between Charleston or Savannah and Chattanooga.				80 85	

1st class.—Boxes of Hats, Bonnets and Furniture per 100 lbs.....  
 2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Baskets, Tubs, Sifters, Brooms and other light articles, per 100 lbs.....  
 3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casts, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
 4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit (in casks or sacks) Pig-iron and Lard seed Oil, per 100 lbs.....  
 Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	80 20
Second class, per 100 lbs.....	1 30
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

## LOCOMOTIVE AND CAR AXLES.

The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,

Willow Street Wharf,

41f Philadelphia, Pa.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adr.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adr.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adr.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adr.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adr.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adr.)

FRENCH & BAIRD, Philadelphia. (See Adr.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adr.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIN, N. Y.

PHENIX POUNDRY, N. Y.

ANDREW MENNELLY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	6 00
One column " ".....	3 00
One square " ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 39.]

SATURDAY, SEPTEMBER 25, 1847.

[WHOLE No. 588, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, September 25, 1847.

### Schuylkill Coal Trade of 1847.

PHILADELPHIA AND READING RAILROAD—Amount of coal transported during the week ending Thursday, September 16, 1847.

	Tons, cwt.
From Port Carbon.....	10,331 14
" Pottsville.....	5,245 17
" Schuylkill Haven.....	14,197 11
" Port Clinton.....	2,266 04

Total for week.....	33,041 06
Previously this year.....	916,828 13

Total.....949,869 19

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

### Philadelphia and its Increase.

It is gratifying to us to chronicle the increase in the shipping of this port, as we do by giving place to the following paragraph, from the Shipping List:

"New Line of Packets.—It will be seen by our advertising columns, that Messrs. Richardson, Watson & Co. have made arrangements for running a new line of packet ships between this city and Liverpool. One packet is to sail from this port on the 12th of each month. With the great increase in business, which must follow the completion of the Pennsylvania railroad, it would seem to require not only the present, but additional lines of packets or steamers between this port and Liverpool—and also to Havre. Every facility must be given to the shipment of produce from this port, in order to enable us to compete with New York and New Orleans."

### Plank Roads.

The following paragraph describes the result of an enterprize of which we have heard something before.

"In company with George Geddes, Esq.," says the editor of the Cultivator, "we lately enjoyed a ride on the Salina and Central square plank road. This road, in constructing which Mr. Geddes was engineer, was completed during the past year. Its length is 15 miles. It is decidedly the most agreeable road to ride over, that we ever saw. The carriage glides as smoothly as on the frozen surface of a lake or river. The planks are hemlock, eight feet long and three inches thick, laid immediately on the earth—which is made perfectly smooth to receive them.—They keep their place without any fastening. On one side of the road there is a good ground track 12 feet wide, made exactly level with the plank, on which carriages turn out, and which in dry weather is a good road. The cost of this road—including both the earth and plank tracks—was \$1500 per mile, and it is expected the plank will last eight years. A team will carry about double the weight on this road that it will on the common roads, and a horse in a light carriage will readily go along at the rate of 60 or 70 miles a day. In sections where plank can be cheaply procured, we have no doubt that these roads will be found profitable."

Plank roads are to become important auxiliaries to railroads. They will become the connecting links between railroads and adjacent villages, on which the people will use their own teams. We shall be gratified to see them extensively introduced throughout the country, and there is no man in the States better qualified to introduce them than Mr. George Geddes.

### Boston and Maine Railroad.

At a meeting of the Boston and Maine railroad, says the Boston Courier, the following named gentlemen were chosen directors of the road for the ensuing year:—Thomas West, Andrew Pierce, Richard, W. Bayley, William F. Weld, S. A. Walker, Henry B. Stone, John Flint.

### College of Mines in France.

The law authorizing the purchase of the estate of Chante Grillet, near St. Etienne, as a school of mines, has been decreed by a royal ordinance; such an institution will be most beneficially felt in that great coal mining district.

### Harlem Railroad.

We understand that this company has made the contracts for the grading and masonry for the extension of the road to Dover, Dutchess county, 29 miles from its present terminus. The contracts are made with men of experience, able to go on with the work without delay, and complete it by the 1st day of July next. The whole cost, it is said, will be less than \$223,000, which is \$27,000 below the estimate of the engineer. The farmers of Dutchess county, alive to the importance of this work, have made a free gift of the right of way for nearly the entire distance. The cost of the right of way was estimated at \$25,000; it will not much exceed \$5,000. The engineer will immediately go on with the surveys, and locate the road from Dover to Chatham, 45 miles, where this road will unite with the Albany and Stockbridge road, 23 miles from the city of Albany; the surveys already made, and the routes marked out, offer very favorable lines and grades. It is said that the route proposed by the way of Pine Plains will materially shorten the line, and that it may be adopted. It is the intention of the company to have the grading of the road from Dover to Chatham under contract this year, and if practicable, have the whole line to Albany finished, and in operation to Albany, before the close of next year.

There appears to have been new energy and vigor infused into this company during the past year.—They have erected a new and spacious engine house at 33d street—and are now erecting a freight depot at 27th street—for the accommodation of the business sure to result from the extension of the road into the heart of old Dutchess.

### Increase of Business on the Public Works.

Many will be astonished, when they get the annual reports of the different public works this year, at the wonderful increase of the business of the year. The increase will be nearly, or quite, 20 per cent. greater than any previous year. The amount received for tolls on all the New York canals during the first week in September, was.....\$105,178 12 Same period in 1846.....81,481 15

Increase.....23,696 97

The aggregate amount received from tolls from the commencement of navigation to the 7th of September, inclusive, 130 days, was.....\$2,320,601 90 Same period in 1846, 145 days,....1,589,259 15

Increase.....731,342 75



The following table shows the amount received for tolls during the first week in September, from the years 1840 to 1847, inclusive; and also the aggregate amount received from the commencement of navigation to the 7th of September, inclusive, during the same years:

*New York State Canals.—Receipt of Tolls.*

Year.	1st week in Sept.	Total to Sept. 7th.
1840,	\$57,752 21	\$971,482 44
1841,	62,330 88	1,197,461 16
1842,	52,766 49	967,673 45
1843,	68,720 27	1,196,272 05
1844,	77,593 35	1,520,041 86
1845,	75,740 39	1,453,814 93
1846,	81,481 15	1,589,259 15
1847,	105,178 12	2,320,601 90

The increased tolls on the canals of the State of New York thus far this year, have been nearly 50 per cent. and on the public works of Pennsylvania about forty per cent.

*Public Works of Pennsylvania.—Income from Tolls.*

Receipts for August, 1847.....	\$191,739 11
Receipts for August, 1846.....	136,313 20

Increase August, 1847.....	55,425 91
Total amount of tolls received from December 1, 1846, to September, 1847.....	1,211,373 09
Same period previous year.....	847,201 58
Increase in 1847.....	364,171 51

The aggregate tolls this year will not fall much short of sixteen hundred thousand dollars, and the increase will not vary much from five hundred thousand dollars, compared with the total of last year.—This result will give renewed confidence to the people of the State, and induce them to push through, at the earliest period possible, the Central railroad.

*Springfield, Hartford and New Haven Road.*

The annual meeting of the stockholders of this company was held in Springfield on Wednesday. The Hon. Thomas K. Brace was called to the chair, and Hon. I. W. Stuart was appointed secretary. It appears from the report of the directors that the receipts of the company have been much greater the past than any previous year.

For passengers.....	\$177,133 00
For freight.....	90,681 32
Rents, storage, steamboats, expresses, mail and other sources.....	56,910 96
Total receipts.....	324,725 28
Deduct expenses and interest.....	167,251 46

Balance.....	157,473 82
Cash on hand September 1, 1847.....	65,824 44

The amount received for passengers in 1846, was \$155,061 01—increase in 1847, \$22,071 99, or 14 1-5 per cent.

The amount received for freight in 1846, was \$61,250 73—increase in 1847, \$29,430 69, or 46 1-3 per cent.

The number of persons transported between all the stations on the road the past year, is \$226,595—the previous year, 191,270—showing an increase of 35,325. No accident of any serious character has occurred in the transportation of the passengers.

The expenses of the year have necessarily been large. In addition to the re-building of the bridge over Connecticut river, all the important bridges between Hartford and New Haven have been re-built in the most complete and substantial manner. Two new locomotives have recently been ordered; and during the year two passenger cars, two second-class cars, and 34 eight-wheeled freight cars, have been put upon the road.

The entire cost of the branch road to Connecticut

river, which was completed and put in operation at the opening of navigation in the Spring, is \$85,607 64. The business on it is large, and has fully justified the anticipations which led to its construction.

The relaying of the track between Hartford and New Haven with a heavy rail weighing 57 lbs. to the yard, was completed in the month of June, with the exception of three miles.

The directors have made a dividend of four per cent., payable on the 1st of October.

The following gentlemen were re-chosen directors for the ensuing year, viz:

Charles F. Pond, David Watkinson, Hartford; Elisha Peck, C. Vanderbilt, New York; Ezra C. Reed, New Haven, J. S. Brooks, Meriden; F. R. Griffin, Guilford; C. W. Chapin, William Dwight, Springfield.

The directors have re-elected Charles F. Pond president, James H. Wells treasurer, and Horatio Fitch secretary.

The increase of business on this road has exceeded even our expectations. It shows that we may rely confidently on a large increase in the various departments of traffic—especially of freight—which on this road exceeds, by over 46 per cent., that of last year. It may not another year show as rapid an increase—as there may not be both famine and war to stimulate trade next year—yet the increase will be constant, and the people will see that judicious investments in railroad stocks are among the very best that can be made; for the reason that their income will increase, and the cost of working them will decrease, from year to year.

*Mississippi and Atlantic Railroad.*

*Boston Enterprise. Western Trade. Indianapolis Convention. Railway to take the course of the Cumberland Road. Connection with Cincinnati—with Baltimore—with Boston. Immense and increased value of Western Trade. Importance of this Railroad to Commerce, and to Value of Massachusetts Railroads.*

We find in the Boston Courier, of 9th inst., the following article, showing conclusively that efforts are being made to unite the Boston and western interests. Indeed, even a casual observer must have observed, for years past, that the business men of Boston have been devising, and carrying out their plans to draw, as far as possible, the return business to themselves—and they will do it, too, to an astonishing extent, unless the other cities open greater facilities for rapid and cheap communication between their own ports and the granaries of the west.

We are not quite sure, but we conclude the article was written by some gentleman residing on the line west of Columbus, Ohio. He says:

"Boston is behind no other city in promoting the great improvements of the age; and her enterprize already overleaps the bounds of New England, and extends a helping hand to develop the latent energies of the remoter portions of our wide spread nation.

"The trade of the west, if placed in connection with the Atlantic States by continuous railroads, would greatly exceed in value the whole existing commerce of the United States with foreign nations; and it is somewhat remarkable that no combination of wealth and enterprize has hitherto projected and accomplished a scheme for a grand and unbroken railroad communication between the commercial cities of the Atlantic coast and the emporium of the Mississippi valley.

"In May last, a convention, at which the

present governor of Ohio presided, was held at Indianapolis, consisting of delegates from the three States of Ohio, Indiana and Illinois, to consult upon suitable means to effect a railroad connection between St. Louis and Cincinnati; and in conjunction with this object, a continued railroad connection between St. Louis, on the Mississippi, and the termination of the Baltimore and Ohio railroad at Wheeling, on the Ohio, with the ultimate view of thus completing a railroad communication, by one grand route, from the emporium of the upper Mississippi to the Atlantic border.

"The route proposed for this railway is the line of the great Cumberland road, as marked out under the direction of the engineer department, by authority of Congress. It runs from Wheeling, on the Ohio, through Columbus, the capital of Ohio, Indianapolis, the capital of Indiana, Terre Haute, on the Wabash, and thence in a direct line to St. Louis, on the Mississippi—taking, in its whole course, one of the most fertile regions of the west, with a population capable of insuring to the road a local business which would be alone sufficient to make it a safe and profitable investment.

"It intersects the Wabash and Erie canal at Terre Haute; the railroad from Madison, on the Ohio, to Indianapolis: the Cincinnati, Mad river and Sandusky railroad at Springfield, Ohio; and the great canals of that State, besides several railroads now in a state of progress or inception. The branch for Cincinnati will diverge from the main line at Richmond, which point is sixty miles only from that city, and lies upon the eastern border of Indiana.

"The whole distance from St. Louis to Wheeling is 600 miles, through districts remarkably favorable for the construction of the road. A company is already chartered to construct that portion of the road which passes through the State of Indiana, and the legislature of Ohio have granted the right of way for its entire course through that State to Wheeling. No further legislative action is therefore required to commence the prosecution of the whole line, with the exception only of that portion which extends through the State of Illinois, comprising one hundred and sixty miles.

"The wealth and enterprize of Indiana and of Ohio are fully adequate to accomplish their portion of the enterprize, and the city of St. Louis is ready to give a helping hand to that portion which passes through Illinois, where the population is not sufficiently dense or rich to accomplish the work without aid from abroad.

"The entire route, when completed, from St. Louis to Baltimore, will not exceed 950 miles in length, and may be readily travelled within 48 hours.

"Upon this route the whole travel from the eastern and middle States would inevitably concentrate. But the interest of the west invites her to a more direct route with the New England cities, which could be accomplished with readiness and certainty by a railroad diverging from the main stem at

Columbus, and striking the great Western railroad at Buffalo. A continuous line of railroad might thus be accomplished from Boston to St. Louis, by a direct and available route, every section of which would embrace a rich and well peopled country, abundantly able to sustain such a road, by the facilities afforded to its local trade and intercourse.

"The waters alone of the great valley of the Mississippi bear annually upon their bosom a commerce which was estimated, in 1845, at three hundred millions of dollars. This trade will double in less than ten years. The natural and best market for this immense commerce, is New England; yet there is at this time, no safe and direct means of commercial intercourse with any portion of the west; and during several months in the year it is wholly interdicted by drought, or flood, or frost. Could any investment more safe, or that promises a better return be hoped for than is offered by an enterprise to unite the capital of New England with the emporium of the west by a railroad which is already half accomplished, and which may be completed by a less amount of capital than has been profitably expended on 200 miles of railroad in Massachusetts and the middle States.

"It is well known that other routes for railroad communication with the west are proposed. *They will all ultimately succeed!*—But the strongest route will be taken first. Let intelligent men decide upon the comparative merits of those which have been urged upon public attention.

"Bring the immense trade of the west directly into New England by well constructed railroads, and the enterprise will not only afford, in itself, one of the safest and best investments ever offered to capital, but it will add from 25 to 50 per cent. to the value of every existing railroad in Massachusetts.

"The public are much indebted to Dr. J. S. Bobbs, and Hon. E. M. Huntington, of Indiana, and to Gov. Bebb, of Ohio, for their intelligent and persevering efforts to promote this great enterprise. Success cannot fail to reward them."

#### Railroad from Cincinnati to St. Louis.

We find the following account of the proceedings of a meeting of the people of Cincinnati on the 11th of August, in a late Cincinnati paper. It shows that Cincinnati is resolved to be, at least, connected with the great line westward to St. Louis—if not on the main line. The editor says: "the adjourned meeting of the citizens of Cincinnati friendly to the early construction of a railroad from Cincinnati to St. Louis, making Indianapolis and Terre Haute, in Indiana, points on the line, took place in the hall of the Merchants' Exchange, on Tuesday evening, August 11th, and was largely attended.

"James Hall, Esq., chairman of the committee appointed at the previous meeting to prepare resolutions for the consideration of the adjourned meeting, made the following report:—

Resolved, That we have heard with much gratification of the project of a railroad from St. Louis to Cincinnati, and heartily concur in the opinion, that a road would be of inestimable value, not only to those cities, and the intermediate country, but to the travelling and

commercial community of the nation at large.

Resolved, That the vast amount of travelling and business passing daily and hourly between St. Louis and Cincinnati, the circuitous route of the communication by water, and its frequent obstruction by ice and low water, render the construction of a railroad between those points, not only necessary, but indispensable.

Resolved, That as a part of the great line of travel, between the sea ports of the Atlantic, and the producing regions of the west, the connection between St. Louis and Cincinnati is necessary and inevitable; and equally so, whether the remainder of the route be through Pittsburgh to Philadelphia, through Western Virginia to Baltimore, or through Kentucky, Tennessee and Georgia to Charleston.

Resolved, That the facilities which would be offered by such a road, for conveying the produce of the country lying along its route, to market, and especially to the great markets of Cincinnati and St. Louis, would in a few years more than repay the cost of its construction, in the value it would add to land and other property, even if it should yield no profit as a stock; but we believe that as an investment it would be one of the most profitable railroads in the United States.

Resolved, That considering the importance of this road to Cincinnati, we hold it to be incumbent on the citizens and city council, to extend to it, without delay, and in the most substantial form, their decided support, and we earnestly commend to them in this respect the public spirited and sagacious example of the city of St. Louis.

Resolved, That we respectfully and earnestly recommend to the city council of Cincinnati, that having first obtained the necessary authority, they subscribe on the part of the city for a liberal amount of the stock of the said road, of which one hundred thousand dollars shall be subscribed to the road from Cincinnati to Hamilton, in Ohio.

Resolved, That we further recommend to the city council, that they extend towards the contemplated road their sanction and approbation, by the appointment of a committee from their body to collect information in regard to the route, length, cost, advantages, and all other details and circumstances connected with said road, to correspond with other committees and bodies, who may have charge of the same subject in other places, and to report to the council from time to time all the information they may collect in regard to it, so that the said council, and all our citizens who may desire to patronize this magnificent national work, may have access to authentic facts in relation thereto.

Resolved, That the president and secretary of this meeting communicate these resolutions to the city council, and also cause them to be published in the city newspapers.

The meeting was addressed by Judge Huntington, of Indiana, Judge Hall, Rufus King, Esq., and others of Cincinnati. The remarks of Judge Huntington with reference to the easy practicability of the scheme, the great fertility of the country which the proposed

line would open to the leading exchanging and shipping points of the west, the assurances that have been given of large subscriptions in the counties that would be passed through, and the great importance of moving early—*promptly*—now—in an effort to connect St. Louis and Cincinnati by an iron track such as that which is proposed, were extremely interesting, and listened to with great attention.

The resolutions were passed unanimously, and ordered to be published; after which the meeting adjourned.

R. BUCHANAN, Chairman.

W. D. GALLAGHER, Secretary.

#### Boston & Maine Railroad—Annual Report.

We have received a copy of the annual report of the directors of this company to the stockholders.—It shows a very favorable state of its affairs. The increase in its business, during the three months ending with August, over the corresponding period of last year, was over \$55,000; exhibiting a state of prosperity highly gratifying to those interested. The directors say—

Since the last annual meeting of the stockholders, the railroad has continued in successful operation. The receipts from transportation of passengers and freight have continued to increase; and its prospects for the future are every way encouraging.

The Medford branch railroad, extending from the main track east of the Mystic river to the centre of the village of Medford, has been completed; and the trains of cars have passed over the road regularly since March 1st, 1847.

Arrangements for the use of the Portland, Saco and Portsmouth railroad by this company, in connection with the Eastern railroad company, have been carried into effect; to the great convenience of the travel between the State of Maine and Boston, and the intermediate towns between Boston and Portland on our own road and other railroads intersecting ours. This has given to the stock of the Portland, Saco and Portsmouth railroad an increased value, while it secures to the Boston and Maine, and Eastern railroads a terminus in the city of Portland advantageous to both these companies.

To secure the advantages to this road of the business that would probably be created by the extensive outlay of capital contemplated by the Essex company, on the banks of the Merrimac river in Andover and Methuen, as well also to provide the most direct railroad route from Manchester, N. H., to this city, should the legislature of New Hampshire grant a charter for a railroad from Manchester to Methuen, the president of this company in January, 1846, presented a petition to the legislature of this commonwealth, asking authority to change its line of railroad in Andover, and also to construct a branch railroad to Methuen, crossing the Merrimac river by a bridge. This petition was referred to the committee on railroads and canals, and at the meeting appointed by the committee for a hearing, the object of the petition was explained; but the committee refused to proceed, as the authority to petition did not emanate from a vote of the stockholders.



A meeting of the stockholders was immediately called, and held at Andover on the 7th of February, 1846, to determine if they would sanction this petition to the legislature. At this meeting, as it will be remembered by stockholders, there was a strong opposition to the change of location; and it was argued that a branch railroad, of a mile and a half in length, extending from the main track at North Andover, would give all the facilities necessary for the companies established at what is now the town of Lawrence. To meet this opposition, the expediency of obtaining the grant was suggested as a precautionary measure, as some other parties might avail themselves of the valley of the Shawshine as a route for a railroad, to the great injury of this company. It was further argued that that part of the road from North Andover to Andover Bridge could be built immediately, and the residue through the valley of the Shawshine river, together with the bridge over the Merrimac river and Branch road to Methuen, be delayed until the Manchester and Methuen railroad should be chartered or commenced.

After this explanation, the stockholders passed the following vote:—"Voted, unanimously, that the stockholders approve and sanction the petition of the president of the company to the legislature of the commonwealth for the change of the location of the railroad in the town of Andover, and of the application for a charter to construct a branch railroad to the town of Methuen, in behalf of the corporation; as also to obtain permission to increase the capital stock by an amount not exceeding five hundred thousand dollars." The act applied for was granted by the legislature, and that part of the road between N. Andover and Andover bridge was built and opened for use in the spring of this year, with extensive side tracks sufficient for the delivery of all the materials sent there by railroad.

Still the companies who had commenced the work on the Methuen side of the river were subjected to the expense of a toll bridge in teaming their materials from the railroad to their works. The directors, aware of the expense and inconvenience to the various parties on the west side of the river, and having a strong faith that the Manchester and Methuen railroad would be chartered, determined to build the bridge over the Merrimac river; and to hasten the work, contracts were immediately made, that the stone piers might be built at the low stage of the river in the summer of 1846. This was done, and the contracts for the superstructure made, to be delivered as soon as practicable in the fall of the year; so that, at any rate, it could be put on early in the spring of the year 1847.—Most of the timber was delivered; but the contractors failed to deliver a portion of it, which was of extra dimensions, and difficult to be procured. From this cause the completion of the bridge has been delayed; but it is now nearly framed, and will, with all despatch, be finished.

The charter of the Manchester and Methuen railroad, which is to connect with this road at the line of New Hampshire, was

granted at the last session of the legislature of that State. The company has been organized, the stock taken, and it will no doubt be completed and open for use during the next year; when, in connection with other railroads extending into the northern and western section of our country, it must operate favorably upon the interests of this company.

The grading and masonry of that part of the change of the location of the road which runs from Andover bridge through Ballardvale to our present road at the Thompson curve in South Andover, was let to contractors highly recommended for their competency to perform their engagements. But the contractors for the grading have failed to expedite the work so energetically as they should have done; and from this cause, and the large excess of rock cutting over and above what was expected by the engineers as well as contractors, the road bed will not be completed before winter sets in. In referring thus minutely to the change of the location of the road, it is designed to meet a mistaken impression that this work has not been commenced as early as was expected by the stockholders.

We have now building and nearly completed, on our island in Charles river, an engine house and machine shop of extensive dimensions, calculated to meet the increased business of the road. Large additions have been made during the past year, and are continuing to be made, of motive power and working furniture; and preparations are making for laying a double track as far as Reading, which is designed to be continued to Lawrence.

The loss of five hundred tons of rail shipped from Wales, on board the ship *Trial*, which foundered at sea, has occasioned some delay in our improvements; but the company has sustained no important loss, as the cargo was fully insured. We have contracts for two thousand tons of rails in England, a part of which we shall soon be receiving.

THOS. WEST, President.

#### TREASURER'S REPORT.

The treasurer submits to the stockholders the following statement of the financial affairs of the corporation:

The amount of capital stock paid in on September 1, 1847, was.....	\$2,596,154 02
The amount of debt, exclusive of unliquidated claims, was as follows:	
State loan, not now payable.....	\$150,000 00
Bonds.....	41,000 00
Notes payable, after deducting cash on hand and at interest.....	19,858 13
Amount expended on the Massachusetts portion of the road, to September 1st, 1847.....	210,858 13
Main road.....	\$1,593,648 61
Change of location at Lawrence.....	110,779 52
Medford branch.....	51,151 01
Amount expended on the New Hampshire portion of the road.....	1,755,589 17
Amount expended in Maine.....	804,455 49
Locomotives and cars.....	\$2,626,101 71
Total expended on road and equipment.....	182,627 80
	\$2,808,729 51

Receipts and expenses for the financial year ending May 31, 1847, when the accounts of the corporation are made up.

#### RECEIPTS.

Reserved profits, June 1, 1846.....	\$22,972 51
Passenger fares.....	264,863 39
Freight.....	144,139 06
Mail.....	5,235 01
Rents.....	548 87
	\$437,758 84

#### EXPENDITURES.

Repairs of engines and cars.....	\$31,096 00
Repairs of road.....	20,104 21
Repairs of depots.....	1,867 90
Repairs of bridges.....	174 50
Wood.....	31,593 31
Wood and water.....	8,262 90
Oil.....	7,772 59
General expenses.....	14,611 66
Clearing snow.....	9 33
Care of bridges.....	993 31
Merchandise expenses.....	13,794 85
Portland, Saco & Ports. R.R.....	19,166 66
Of conductors and brakemen.....	8,923 41
Enginemen and firemen.....	12,794 74
Depots and offices.....	10,505 89
Interest.....	16,461 83
State tax of N.H. & other taxes.....	6,608 39
	\$204,744 51

Profits.....	\$233,014 30
Dividend of \$3 50 per share, paid January, 1, 1847.....	\$83,310 50
Dividend of \$4 pr share, paid July 1, 1847.....	95,212 00
	178,522 50
	\$54,491 80

On the 19th of December last, the directors ordered the sum of 20,000 dollars to be charged to profit and loss, on the ground of the depreciation of the engines and cars below their cost.....

Leaving as reserved profits.....	\$34,491 80
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The following is a statement of the earnings of the road since June 1, 1847, as compared with those of the preceding year.

	1846.	1847.
Earnings in June.....	\$29,777 61	\$40,306 05
" July.....	36,616 50	62,036 87
" August.....	34,331 82	63,679 89
	\$100,725 93	\$156,022 81

All which is respectfully submitted,  
EDW. PICKERING,  
Treasurer Boston and Maine Railroad.  
Boston, September 1, 1847.

#### Railway Brakes.

We shall let no opportunity escape us of calling attention to this subject, and of placing before our readers the opinions and plans of practical men in relation to it; we therefore copy from the *London Mining Journal*, of 14th August, the plan of George Stevenson, Esq., as explained by him at a meeting of the Institution of Mechanical Engineers.

At a quarterly meeting of the Institution of Mechanical Engineers, held at the Philosophical Institute, Birmingham, on Friday, 6th inst., J. G. McConnell, Esq., of the North Western railway, in the chair, the following communication from Mr. George Stevenson was read:

"The various accidents on railways arising from concussions and collisions (and especially the late accident at Wolverton) have induced me to draw my attention to the construction of a self-acting railway brake, which I have for several years had in view—a plan and model of which I have had made, and now lay before the society, with my descrip-

tion of its action and effects. When a railway train is moving at the rate of from 40 to 50 miles an hour, the momentum is so great that it cannot be stopped in any reasonable distance by the brakes at present in use; or if an axle tree break, or any accident happen to the engine, so as to prevent its progressing, the sudden shake causes the carriages to overrun each other, and those next the engine are almost certain to be crushed. In an accident of this kind neither the engine driver, stoker, or guard can be prepared; and before there is time for any of them to put on the brake at present in use, so as to be in the least degree effective, the collision or concussion has taken place. When the engine driver shuts off the steam, or applies his brake on the tender, the self-acting brake is immediately brought to bear upon every wheel attached to every carriage in the train so powerfully, if necessary, as to bring every wheel into the condition of a sledge. I think the train will be brought to a stand by this brake in 1-10th of the space in which it can be by the brakes at present used.

"My plan is as follows: I attach a couple of spiral springs to the levers of the brake of every carriage, and also connect them with the buffers; and if the carriage requires gentle breaking (which will always be the case when a train approaches a station,) the engine driver, by shutting off a portion of the steam, or applying the brake gently, will have complete command over the train, without any of those violent uneasy motions which are very frequent, and excessively disagreeable to passengers; and as the guard is frequently compelled to apply his brake so powerfully as to make the wheels slide on the rail, and cause a considerable amount of wear and tear on the tire of the wheel, by which it becomes flat sided, and makes the carriage uneasy, and creates a jumping motion on the rail. Suppose a train of carriages moving at the rate of from 30 to 40 miles an hour, and a signal is held out for the engine driver to stop, the moment he shuts off the steam, the whole of the brakes are brought into instant application of sledging the wheels, which will be more effectual than 50 men applying the common brakes, as the mischief is frequently done before the guard can be apprized of the approach of danger.

"It is frequently necessary for the trains to be backed into a siding; when this is required, the train will first have to be stopped, and in one minute the whole of the brakes can be disengaged from the buffers, as is shown in the model, and when the train proceeds they are again dropped into gear.

"The plan altogether appears so simple, that any ordinary mind can easily understand the whole of it, and I think the cost of putting the brakes on each carriage would not exceed more than from £5 to £10.

"Any effectual plan for increasing the safety of railway travelling is, in my mind, of such vital importance, that I prefer laying my schemes open to the world, to taking out a patent for it; and it will be a source of the greatest pleasure to me to know that it has been the means of saving even one human

life from destruction, or that it has prevented one serious concussion."

In consequence of Mr. Stevenson's absence the invention (of which a beautiful model was exhibited) was not discussed, it being agreed that a special meeting should be called to consider the subject.

The consideration of Mr. Buckle's experiments on fan blasts (see Mining Journal of 22d May) now exciting considerable interest, was then resumed. The chief object of Mr. Buckle was to show that the present fan blasts were imperfect in construction and expensive in operation. He proposed, as the result of experiments extending over a period of nine years, to have a series of fans, revolving in such a way as that the blast of air thrown from one would be communicated to each. He also showed the advantages of having a large inlet pipe; by these means he estimated that not only would the blast be stronger with less horse power, but it would also be uniform—thus improving the quality of the iron, as well as producing it at a cheaper rate.

Several of the members took part in a discussion which arose on a purely theoretical question, as to the laws by which air was regulated; and at the close, a vote of thanks was given to Mr. Buckle.

Papers on various engineering subjects were then promised by several of the members, and the meeting adjourned.

#### THE COMMERCE OF NEW ORLEANS AND OF THE ERIE CANAL.

The Albany Argus has a statement of the commerce of New Orleans for the year ending 31st August, which enables us to compare the movement from the interior to that city, of some of the principal articles of breadstuffs, with the movements of the same articles to tide water upon our State canals. This statement will serve to disabuse the minds of many who entertain the idea that in this branch of our commerce, New Orleans far exceeds that of our canals. Indeed, we have heard it said by those who no doubt had perfect belief in the truth of their statements, "that it was no uncommon thing to see 500,000 bushels of corn afloat in New Orleans, the result of one day's receipts from the interior." That the commerce of New Orleans, in the article of breadstuffs, has rapidly increased within the last twelve months, under the active demand for Europe, no one will doubt; but it will not be found to show a greater increase than that of our State canals.

In the first place we will present the receipts at New Orleans from 1st September, 1846, to 1st September, 1847, of flour, wheat and corn, and of the same articles delivered from the Erie canal at tide water, from 1st May, 1847, to 1st September, 1847, a period of only four months.

	Erie canal.	New Orleans.
Flour,	2,392,508 bbls.	1,617,675 bbls.
Wheat,	2,533,589 bush.	1,670,000 bush.
Corn,	4,504,985 "	7,065,000 "

Here we find, in the space of four months, the receipts of flour are greater by 750,000 barrels, and of wheat by 850,000 bush. than

the receipts at New Orleans for the whole of the year. The article of corn is less by 2,500,000 bushels.

We will now present the statement of the articles of flour, wheat and corn, delivered from the Erie canal at tide water, from the 1st September, 1846, to the 1st September, 1847, embracing the entire canal season for one year, and with it the statement of the same articles received at New Orleans during the same period.

	Erie canal.	New Orleans.
Flour,	3,858,300 bbls.	1,617,675 bbls.
Wheat,	4,599,272 bush.	1,670,000 bush.
Corn,	5,083,318 "	7,065,000 "

We have here the business of one year at the two points, although that of the Erie canal embraces a period of but seven months: still it is the entire season. The difference in the receipts at the two points in the articles of flour and wheat is very great; and the excess of corn received at New Orleans over the quantity from the Erie canal is also very large. The increase however in the receipts of corn from the Erie canal has been greater than at New Orleans, having risen to the enormous quantity of 5,000,000 bushels in one year, the previous seasons sending forth merely a nominal amount, seldom exceeding 300,000 or 400,000 bushels; while at New Orleans, the receipts as far back as 1837 and 1838, have not fallen much below 450,000 bushels in any one season.

These are facts showing the success of our canal commerce in the single article of breadstuffs laboring as it does under an ice embargo for a period of nearly one half the year. Still that commerce increases yearly, and future seasons will show the ability of our system to maintain a successful rivalry with New Orleans for the treasures of the fertile west.

#### Anthracite Coal for Locomotives.

We find in the Journal of the Franklin Institute for August last, the following article, by Professor W. R. JOHNSON. The growing importance of the subject, and the reputation of the writer, will ensure an attentive perusal of his views in relation to it; and we therefore give it entire.

At the monthly meeting of the Franklin Institute, held June 17th, 1847, the following remarks on the use of anthracite in locomotives, were made by PROFESSOR W. R. JOHNSON.

Since the attainment of so complete a success, in using anthracite under the boilers of stationary engines, and on board of all our principal river and sound steam vessels on the Atlantic coast, it has become a subject of much inquiry, to determine why so little success has attended the efforts to introduce it into general use upon railroads. Various trials, on the Columbia road, and others on the Reading road, have, it is understood, been attended with so little promise of advantage, as to cause, at present, the abandonment of that fuel, and an adherence to wood, as the only available material. The cost of wood, alone, to the Reading railroad, during the last year, is put down, in the late annual report, at \$202,061, and, as the total quantity of coal brought to market over the road, was 1,188,258 gross tons, we have, after deduct-



ing the wood required for passenger and freight trains, an expense of \$191,569, for the wood required to haul that quantity of coal 94 miles, and to take back the empty cars. It is true, that the whole of this coal did not reach tide water, but the computation is based upon the fact, stated in the report of the company, that the cost of wood, "per round trip of 188 miles," to haul 360 tons of coal, the above distance, and "back with empty cars," was 14.92 cords, costing \$58.04. It is estimated, by the president of the railroad company, that the introduction of anthracite, instead of wood, would save the company \$125,000 per annum. Should it save half this sum, it is evident that great outlays, to effect the purpose, would be warranted, and, consequently, the efforts heretofore made would be fully justified. Mr. Nicolls, the engineer, and general superintendent of the Reading road, has been, for some time, engaged in an effort to accomplish this object, by placing the engine and boiler on separate carriages, with a view to an enlargement of the fire surface of the latter. Mr. N. has, in fact, used an ordinary locomotive, to which he has attached, on a separate truck, a boiler 16 feet long, and 4½ feet wide, with a semi-cylindrical arch running the whole length. This is connected by jointed pipes, with the engine. The blast is created by a fan, driven by a small engine. The escape steam is thrown into what was the original boiler of the locomotive engine, which is still retained, for the double purpose of serving as a condenser, and of making weight on the driving wheels. If this plan of condensation shall be found available, much time will be saved which is now consumed at water stations, as a large portion of the water will be constantly circulating.

So important to the Reading railroad, has this item of expenditure of fuel become, that, during the past year, efforts have been made by the company to manufacture an artificial fuel, with a basis of anthracite, as a substitute for wood. In this, they are understood to have so far succeeded, as to have made some trips with it. But still the desideratum is the use of anthracite alone.

Having several times, within seven or eight years, witnessed the exclusive use of anthracite, in all the locomotives on the Beaver Meadow and Hazleton railroads, making round trips of thirty or forty miles, I have felt much interest in tracing the causes of ill success elsewhere.

From all the inquiries which I have been able to make, the following appear to be regarded as the chief impediments to the use of anthracite in locomotives.

1. The want of rapid ignition, and free, lively combustion.

2. The intense, concentrated, local heat, which is said to destroy the grate bars, to attack the rivets and laps of the fire box, and even to cause blisters to rise in the plates of which it is composed; and, finally, to fuse the ashes into a troublesome clinker.

3. The sharp, angular particles of coal, projected by the violent, fitful blast of the escape steam, obliquely into the ends of cop-

per tubes, cuts them away within a few inches of the fire end. In the upper range of tubes, it is the upper side which is chiefly attacked, and, as might be anticipated, in the lower ranges, the lower sides are most worn away. The effect of this cutting is usually limited to four or six inches of the length of the tubes.

4. The difficulty of fitting in iron tubes, so as to make perfect joints, and, at the same time, avoid irregularity in the form of the heads, and loosening one tube while another is fastened.

As the first of the above difficulties, the want of proper activity in the fire, has been completely overcome in our steamboats, by the use of a steady fan blast, it seems that an equivalent blast in the locomotive ought to produce the same effect. The irregular, fitful current, generated by the waste steam, is not in all respects equivalent to the blast of a fan, but when that blast is equalized, by projecting the escape steam, first into a receptacle of considerable magnitude, and then through a number of small pipes, equally distributed over the area of the chimney, the blast is so nearly equable, as to answer completely the purpose of sustaining the fire in brisk and uniform activity. This method of disposing of the escaping steam, originally invented by Mr. Gurney, and applied in common road engines, to prevent the frightening of horses, by the sudden, violent belching sound, was first introduced here by Mr. Hopkins Thomas, now of Beaver Meadow, while a workman in the employ of Messrs. Eastwick & Harrison. His object was a steady blast, not the mere avoidance of disagreeable noise.

The steam box used to equalize the draught, is cylindrical, 12 inches in diameter, and 11 inches deep; two tubes, each three inches in diameter, flanged at the opposite ends to the steam chests of the two cylinders of the locomotive, support the box in the interior of the dust chamber, and convey the escape steam to its centre. A lid, ground to fit the top of the steam box, has 18 jet pipes, rising two or three inches from its upper surface, drawn in at the top to a diameter of half an inch. These are placed just beneath the base of the chimney, and their purpose is to distribute the escaping steam throughout the chimney, and, by limiting, to some extent, the rapidity of flow, to maintain within the box a pressure approaching to uniformity.

Messrs. Eastwick & Harrison founded, on a division of the receptacle, into two parts, a patent, which they applied in some engines built by themselves. But as this evidently tended to make the action of the steam upon the air of the chimney, in a degree partial and fitful again, the Beaver Meadow and Hazleton companies discarded this modification of Gurney's plan, and, in all their engines, which have constantly used anthracite for the last eight or nine years, the draught is ample, the combustion regular, and the evaporation vigorous and well sustained. The fire is, of course, kindled with wood, and when this is well ignited, anthracite is added by little at a time, usually not more than a single shovel full, and in lumps, com-

monly not above six inches in diameter. If larger than this, they would remain too long in mass, dark and ineffectual; if small egg or nut coal alone were used, it would, it is alleged, by the jarring of the locomotive, spread over the whole fire at once, and check the evaporation. While under way, the bed of coal under the grate is kept at a thickness of five, or at most, six inches. When fresh coal is added, care is taken, that a single shovel full only is put on at once, and that this is thrown on the part which appears thinnest. Much experience in watching the indications of a manometre, while generating steam by anthracite, enables me fully to appreciate the importance of these practical precautions. In some of the attempts to use anthracite on the Reading railroad, a bed of 18 inches thick is said to have been allowed to accumulate on the grate. In such cases, the whole engine is said to have become excessively overheated, and a flame to have passed out at the chimney. This is easily understood, when we consider that, in passing through so thick a mass of hot coal, the carbonic acid at first formed ( $\text{CO}_2$ ) by taking up a second proportional of carbon, becomes  $\text{CO} + \text{CO}$ , or two proportionals of carbonic oxide. The atmospheric air to ignite this compound, gains admittance partly through the chinks of the fire door, and the dust box door, and is partly found near the chimney top, where the intermitting blast through a single jet pipe, keeps the chimney alternately receiving and emitting air.

The second evil, that resulting from the highly concentrated heat, has been found much more serious than the preceding. Grate bars were burned out in a few weeks. Capt. A. H. Vancleve, who had charge of the Beaver Meadow road, states that, at one period, wrought iron bars were substituted for cast, but that it required two smiths' fires to be in constant employ, to make grate bars for four locomotive engines. The secret of preventing this occurrence, was stated by a gentleman at Hazleton, to have been discovered by accident. A boulder, which had rolled from a slope upon the track of the railroad, tore off the ash box of the first engine which passed. As the damage did not interfere with the running of the engine, and as it was not convenient for some days to return to the machine shop, it was permitted to continue its trips for some days, without an ash box. The overheating and wasting of grate bars were so manifestly obviated during the time, as to attract immediate attention. Ash boxes were successively removed from other engines, and, from the adoption of this alteration to the present time, the destruction of grate bars has ceased to be a source of serious inconvenience. A set in the locomotive Franklin, were put in in June, 1846, and were in use, and in good order, at the end of May, 1847.

It may be supposed that the wooden superstructure of the road, and particularly that of bridges, would be endangered by the constant falling of sparks. In the main, it may be said, that this evil at length cures itself, for both road and bridges, except the rails

become covered with a stratum of cinder and fine particles of coal, which effectually defends all beneath from danger of igniting by particles of hot matter from the grate. Unlike particles of ignited charcoal, these are, from their very weight, not liable to be easily raised and blown about by the currents of air created by the cars, which pass over them after they reach the road. Hence the only precaution which has been found necessary, is to place two sheets of iron, one on each side of the bottom of the fire box, extending downwards about nine inches, and sloping inwards, to confine the falling cinders to the central part of the track. At first a watch was established at the bridges, but when the roadway became covered with cinder, there was found to be very little danger from this source. The Hazleton and Beaver Meadow roads have wooden rails, laid with flat iron bars; where edge or T rails are used, the danger would be manifestly less than in the case of these roads, which have so long used anthracite without detriment.

The concentrated heat of anthracite fires, generally affects injuriously only the laps and rivets of the fire box, unless the iron of that part of the boiler be of inferior quality. Hence the importance of selecting the very best of iron for the fire box, and the probable utility, as suggested by Capt. Vancleve, of subjecting it to a high temperature before using any plate for this purpose, in order to detect blisters or imperfect weldings, if such exist in the interior. The number of pieces used in the lower part of a fire box, ought to be the least possible, and the horizontal laps ought not to have their edges presented downwards to the action of the rising flame. I see no practical difficulty in the way of rolling sheets 18 inches wide, long enough to form the entire circuit of the lower part of a fire box. Above that height there would be no danger from this peculiar action of the fire. Nor do I know of any serious objection to welding together the ends of such a sheet, especially if made three-eighths of an inch, or more, in thickness, and thus forming a band in which not a single joint or rivet should come in contact with the fire. All other parts of the boiler would still be made in the ordinary manner.

The locomotive Lehigh commenced running on the Hazleton road in 1838. In 1448 it was found necessary to renew a space of about 18 inches in the lower part of the fire box, and this is the only repair which that part has undergone since the engine was put upon the road. I examined it in the latter part of May, 1847, and found the iron, to all appearance, sound and good, with no leak at the rivets, or elsewhere. Three or four of the upper rows of tubes in this engine have been in use since 1839, and the rest were renewed about two years ago.

To avoid the conversion of ashes into clinker, those anthracites should be selected, which are free from slaty plies, and which contain the least of sulphuret of iron, or other fusible impurities. Should any inconvenience be found from clinker on a prolonged trip, it could easily be removed at a watering

station, by means of a forked fire hook, adapted to that peculiar service. A small supply of wood may be carried for re-kindling, in case of unusual delays. But the experienced fireman will always be careful to clear coal and clinker from his grate, before he attempts a renewal with wood.\* Grates may be hinged, with a view to the prompt discharge of their contents, and, with that facility, the re-kindling with wood may take place even without stopping the engine, especially if advantage be taken of a favorable grade of the road.

The third point of difficulty, that resulting from the cutting away of copper tubes, is fully obviated by the substitution of iron, with the farther advantage of economy in the first cost. But this brings us to the fourth and last difficulty—that of securing iron tubes to the heads of the boiler.

This has been attempted in several different ways. One consists in cutting a screw at each end of the tube, to enter corresponding threads cut in the heads of the boiler, and then rivetting over the projecting edges of the tubes. That on which Mr. Baldwin has founded a patent, consists in brazing a short piece of copper tube to each end of the iron one, and then connecting the former with the head of the boiler, in the same manner as he puts in copper tubes. But that which seems the most simple, and which is quite effectual, as proved at Beaver Meadow and Hazleton, for a course of years, is the turning off of the iron tubes, on the outside, at each end, in the form of the frustrum of a cone, to the distance of seven-tenths of an inch, by which the thickness of the tube at the extremity is reduced about one-half. This conical part receives a ring of copper, cylindrical within, conical without, and about half an inch wide, which, after the iron tube has been inserted in its place, is driven on to its conical termination, filling the space between it and the edge of the aperture in the head of the boiler. This copper ring, by its wedging effect, tightens the iron tube, forms a close joint, and allows the edge of the iron tube to be slightly opened out, and rivetted, to form a very perfect juncture. The language used in describing the result of this mode of fitting in the tubes, was, that the "joints never leaked a drop." In rare instances, the welding of a tube, (made by the same process as gas tubes,) is found slightly defective, but this does not long put a stop to the use of the engine, for a very little labor suffices to tap a screw in each end, and plug up a single defective tube, till a convenient opportunity occurs for its removal. To clear dust of anthracite from the tubes, a species of screw auger, with a sharp edge, like that of a chisel, is occasionally employed.

The quantity of anthracite commonly used in a round trip of 30 miles, on the Hazleton road, is from a ton to a ton and a half, hauling 35 to 40 cars, and conveying 100 to 120 tons of coal. The grades on this road are heavy,—60, 80, and 140 feet per mile,—all in the direction of the trade. The severest

\* This, and the succeeding precaution, are suggested by Capt. Vancleve.

labor is, consequently, encountered, in taking back the empty trains. In two experiments, conducted by Capt. Vancleve, over the Beaver Meadow road, reducing its grades by Pambour's formula, to the condition of a level, he found that the seven ton engine required 1½ pounds of anthracite per ton, per mile, of freight and cars hauled, and the 13 ton engine took but one pound for the same labor. The small engine was subject to slipping of its wheels, on the high grades, which, of course, impaired the efficiency of its fuel.

Those who are most familiar with this subject, attribute to the early, persevering, and well directed efforts of the Hon. Samuel D. Ingham, formerly president of the Beaver Meadow railroad company, much of the credit of urging on to final success, the experiments which have proved so important to the interests of that coal region.

### Great Western (Canada West) Railway Report.

Continued from page 600.

#### Appendix.

NOTE A.—Table of Distance in miles.

Divisions.	Mail road.	Railway.	Air line.
Niag. Falls to Hamilton.	49-50	42-10	41-22
Hamilton to London.	85-	75-84	74-20
London to Windsor.	115-50	109-95	108-54
Total.	250-00	227-89	223-96

#### Linear Arrangement.

Division.	Tangent in miles.	Curves in miles.				Total length.
		Radius 11460 ft.	Radius 5730 ft.	Radius 2865 ft.	Radius 1910 ft.	
Eastern.	39-82		1-87		0-41	42-10
Central.	70-94	0-39	1-42	2-52	0-58	75-84
Western.	106-38	1-53	2-04			109-95
Sarnia br.	47-24	1-59		1-02		49-85
	264-38	3-52	5-33	3-54	0-99	277-74

NOTE B.—Table of Gradients.

Denomination of grade.	Name of division.				Total.
	East-ern.	Central.	West-ern.	Port Sarnia br'ch.	
	Miles.	Miles.	Miles.	Miles.	Miles.
Level and under 5 ft. per mile.	21-37	34-83	85-52	41-40	183-12
5 to 10 feet per mile.	4-15	2-06	8-50	8-45	23-16
10 to 20 feet per mile.	8-55	14-75	6-11		29-41
20 to 30 feet per mile.	8-03	9-75	6-82		24-60
30 to 40 feet per mile.		3-35	3-00		6-35
45 ft. maximum west.		11-10			11-10
Total.	42-10	75-84	109-95	49-85	277-74

NOTE C.

James L. Barton, Esq., of Buffalo, in his letters on lake commerce, to the chairman of the committee on commerce in the United States House of Representatives, under date of May 15, 1846, says, "The storms and tempests on the lakes (Eric, Huron, and Michigan) are as violent as on the Atlantic, and the dangers of navigating them is known and acknowledged by those who have tried both, to be equally as great, if not greater. The boisterous weather last fall was very destructive to lives and vessels, amounting to, as nearly as a careful account can make it, sixty lives lost, thirty-six vessels driven ashore, twenty of which became total wrecks; four foundered with entire loss of crews and cargoes, and producing a loss in the value of property of over two hundred thousand dollars. And it has suffered in losses, within the last five years, more than four hundred lives, and destruction and damage to steamboats, vessels, and cargoes, more than one million of



dollars. Ruinous and destructive as the want of safe harbors is to our commerce, the difficulties are vastly increased from the almost impassable condition of the flats in Lake St. Clair. Here steamboats and vessels are daily compelled, in all weather, to lie fast aground, and shift their passengers, cargoes, and luggage, into lighters; exposing life, health, and property, to great hazard, and then by extraordinary heaving and hauling, are enabled to get over. Indeed, so bad has this passage become, that one of the largest steamboats, after lying two or three days on these flats, everything taken from her into lighters, was unable, with the powerful aid of steam, and everything else she could bring into service, to pass over!"

Names of railways.	Length in miles.	Total cost in pounds currency.	Average cost per mile in pounds.	Thro' passengers.	Way passengers.	Miles run by trains.	Cost of running per mile in cents.	Rec'ts in pounds.	Expenses in pounds.	Net revenue in pounds.	Per cent. per an. profit on cost.	Per cent. of rec'ts for expenses.
Mohawk and Hudson.....	17	£265,358	£21,487	174,633	None.	61,572	661	29,461	10,499	18,016	1	364
Schenectady and Troy.....	20	160,335	8,019	57,733	4,996	53,713	531	9,196	7,866	1,309	85	39
Utica and Schenectady.....	78	547,376	7,017	131,653	87,155	167,600	100	107,099	41,955	65,144	12	374
Syracuse and Utica.....	53	292,232	5,325	103,735	51,481	130,000	75	64,409	24,112	40,297	14	40
Auburn and Syracuse.....	26	168,809	6,493	96,675	9,134	61,600	75	29,759	11,511	18,218	104	38
Auburn and Rochester.....	78	466,311	5,980	62,218	80,037	189,245	684	72,588	27,567	45,001	91	31
Tonaawanda.....	434	189,389	4,331	63,339	27,025	70,706	64	35,951	11,296	24,658	131	31
Attica and Buffalo.....	314	76,767	2,413	17,517	10,116	64,632	52	21,624	8,391	13,233	174	394
Buffalo and Niagara Falls.....	22	51,475	2,385	42,690	7,916	24,500	60	8,488	3,651	4,837	94	43
	369	£2,306,982	6,252	315,575	277,853	823,918	71	377,350	146,575	230,702	10	384

NOTE D.—Tubular Statement of the Length and Cost of the Principal Railroads in the State of New York, Together with their Receipts, Expenses, Net Income, Number of Passengers, and Number of Miles run by trains in 1846, as Compiled from the Official Returns made to the Secretary of State, January 1, 1847.

The above railways are mostly single track, with plate rail, (with the exception of two short ones,) but an iron rail is now being laid on those east of Rochester, which will cost £2,500, or \$10,000 per mile.

Total length 369 miles. Total cost £2,306,982 or 9,227,928 dollars.

Average cost per mile, £6,252 or 25,008 dollars.

Average profits ten per cent. on the above railways, or 11 9-10ths per cent. on the railways from Schenectady to Niagara Fall.

Average cost per mile for running the trains 71 cents.

Average per cent. of receipts for expense, 384.

#### NOTE E.—Commerce of the Lakes.

The unprecedented increase of the commerce of the upper lakes, during the past twenty years, caused by the increase of population and opening of new

avenues of communication with the fertile west, has exceeded the most sanguine estimates, and points with unerring certainty to its continued progress.

The construction of the important canal around the Sault de St. Mary, a channel of one mile, thro' which must flow the vast mineral wealth of the Lake Superior region, will give additional value to the already great and increasing north western trade. The growth of the west is steadily and rapidly onward; and with this growth the commerce of the lakes, and the travel between the east and the west must keep pace. The following statements of the increase of the upper lake commerce can be relied upon, as they are made up at the custom houses, at the several parts of the entry, from undoubted authority.

The first sail craft upon Lake Erie was the sloop Detroit, of 70 tons, in 1796, and up to the declaration of war, in 1812, the total number of vessels of all descriptions afloat upon Lake Erie was twelve. The first year after the war (1816) the aggregate tonnage of sail craft upon the upper lakes was 2150, embracing about forty sail (two small schooners only, being over 100 tons burden.) The number of arrivals and departures at the port of Buffalo that season, amounted to only eighty—in 1818, when the first steamer was built, they reached 100. In 1846, the number of arrivals and departures at the same port was seven thousand seven hundred and fourteen, forming an aggregate of one million eight hundred and twenty-five thousand nine hundred and fourteen tons.

On the first of July, 1847, there were the following number and description of vessels owned and running on the lakes above Niagara Falls, as near as could be ascertained by the most careful and extensive research.

Number and names.	Aggregate tons.	Average tons.
81 steamers,	35,835	443
31 propellers,	10,295	332
63 brigs,	14,589	231
315 schooners,	47,738	152
490 total,	108,457	221

There was an increase of tonnage of about thirty-five per cent. in the last eighteen months. The total cost of the above vessels is estimated at six millions two hundred and forty thousand dollars, or one million five hundred and sixty thousand pounds—of which amount, over two millions of dollars, or fifty thousand pounds has been expended since January, 1846, in the construction of new vessels, and the repairing and enlarging old ones.

The following comparative statements of the exports from the upper lakes, will mark the rapid change that has taken place within a few years in the west.

Articles.	1835.	1845.	1846.
Flour, barrels,	86,333	717,466	1,280,897
Provisions, barrels,	6,563	68,100	99,398
Wheat, bushels,	98,071	1,354,990	3,611,234
Corn, "	14,579	33,069	1,179,689

In addition to the above, the following articles passed through the Welland canal to Lake Ontario, from the west, and from the Canadian ports on Lake Erie.

Articles.	1845.	1846.	To July 1, '47.
Flour, barrels,	207,555	273,284	211,897
Provisions, bbls.,	13,963	34,211	16,608
Wheat, bushels,	1,891,627	3,172,969	1,658,093
Corn, "	22,092	461,933	445,100
Boards, feet,	11,584,096	14,855,065	13,848,921

#### PORT OF CHICAGO, ILLINOIS.

	Wheat exported.	Flour exported.
1845,	956,860 bushels.	13,750 barrels.
1846,	1,159,592 "	23,045 "
Increase,	502,732 "	9,295 "

The flour already shipped up to the 31st of July, 1847, exceeds that for the whole year last season.

#### PORT OF MILWAUKIE, WISCONSIN.

	Wheat exported.	Flour exported.
1845,	95,500 bushels.	7,500 barrels.
1846,	213,448 "	15,756 "

The flourishing towns of Racine, Southport, and Little Fort, on the western shore of Lake Michigan, between Milwaukee and Chicago, will add their share towards swelling this immense amount of exports, and will compare favorably with Milwaukee, lying, as they do, directly in front of the best wheat-growing country in Wisconsin.

The arrivals and departures at this port, Milwaukee, for 1846, were:

	Arrived.	Departed.	Total.
Steamers,	352	348	700
Propellers,	111	109	220
Brigs,	95	94	189
Schooners,	837	835	1672
	1395	1386	2781

To show how rapidly the west is being settled and improved, we have only to note the change that has taken place in Wisconsin alone, in a few years.

In 1830 the population was	3,245
" 1836 "	11,686
" 1840 "	30,945
" 1842 "	46,678
" 1846 "	245,228
" 1847 in July estimated at	360,000

Up to 1840, Wisconsin imported their supplies of every kind, including provisions. In 1846 they fed themselves, supplied an army of over 100,000 new emigrants, and of their surplus remaining they exported through the lakes between three and four millions of dollars in value, mostly in agricultural products.

The lead and shot made in this State in 1846, and which principally sought a market, via the Mississippi, is known to have been very large.

NOTE F.—The Great Western Railway Passes through the Niagara, Gore, Brock, London, and Western Districts, and confers upon the Welland, Huron, and Talbot. The following Abstracts from the Assessment Roll show the improvements in these Districts for the year 1846.									
Name of district.	Popula- tion.	Acres of land culti- vated.	Houses.	Mills.			Cattle.		
				Grist.	Saw.	Mer- chant.	Cows.	Young cattle.	Amount of taxable pro- perty.
Niagara.....	49,883	181,334	4,700	67	103	282	8,802	7,200	£661,130
Gore.....	50,632	292,234	5,409	106	172	286	6,396	6,300	917,413
Brock.....	30,000	101,100	1,203	25	65	57	3,700	3,229	313,587
London.....	52,170	168,485	2,619	59	92	63	6,555	5,906	551,781
Western.....	40,709	102,700	1,362	28	34	46	4,800	4,280	331,354
Wellington.....	27,037	133,375	1,277	57	62	67	5,843	4,766	367,647
Huron.....	14,983	20,355	187	12	17	14	452	2,519	91,120
Talbot.....	15,693	50,134	1,419	24	82	37	2,984	1,500	221,166
Total.....	291,098	1,085,737	19,176	378	637	802	46,594	34,503	£3,565,186

## NOTE G.—Port of Hamilton.

The following table is obtained from the collector of customs for the port of Hamilton, and comprises a few of the principal articles of export, for the years 1845, 1846, and a part of the year 1847.

Articles.	Year 1845.	Year 1846.	Year 1847.
Flour, barrels.....	119,348	155,293	136,090
Pork, beef, & spirits, bbls.,	4,614	8,993	5,793
Butter and lard, kegs and barrels.....	271	688	991
Fish, barrels.....	560	657	22
Wheat, Indian corn, barley, and rye, bushels.....	5,693	13,583	981
Hewn timber, feet.....	224,500	151,000	94,123
Boards, feet.....	135,152	16,750	486,400
Staves, feet.....	314,000	111,137	99,500

## WELLAND CANAL.

Statement of some of the principal articles of property passed through the Welland canal during the season of 1845, 1846, and of 1847 from the commencement of navigation until the first of July.

Articles.	1845.	1846.	1847 to July 1.
Wheat, bushels....	1,891,637	3,172,969	1,658,093
Corn, ".....	22,092	461,933	445,000
Beef and pork, bbls.,	13,963	31,211	16,608
Flour, barrels.....	207,555	273,284	211,897
Ashes, ".....	3,062	4,677	1,141
Salt, ".....	219,723	237,811	51,391
Boards, feet.....	11,584,096	14,835,051	3,848,921
Hewn timber, feet, 1,200,824	1,852,563		1,007,082
Staves.....	5,119,876	2,591,511	452,500
Shingles.....	299,500	380,500	
Passengers.....	3,092	3,743	

## TONNAGE.

	1845.	1846.	1847, (to July 1.)
Number of schooners....	2,041	2,335	1,034
" steamboats and propellers.....	492	400	188
Number of scows.....	1,147	1,170	476
" rafts.....	104	120	39
Tonnage.....	312,571	385,969	181,236

A portion of the above returns comprise imports and exports from the Gore District, by the Grand river, and from ports on Lake Erie, Canada side.

## NOTE H.—Western Railway, Massachusetts.

Number of barrels of flour transported from Albany to Troy.

Year.	To Boston.	To other stations.	Total number.
1845,	181,796	146,386	328,183
1846,	331,930	163,919	396,839

Number of tons transported in eleven months of 1846.

Thro' from Boston to Albany, westward,	8,358
All other tonnage.....	40,251
Total going west.....	48,609
Thro' from Albany to Boston, eastward..	36,403
All other tonnage.....	81,382

Total going east.....	117,785
Total number of tons moved.....	166,394
Equivalent number of tons carried 1 mile, 15,748,223	
Equivalent number of tons carried over the whole road.....	100,950

Number of miles run by locomotives in eleven months of 1846.

For passenger trains.....	315,369
For freight trains.....	313,259
For gravel trains, etc.....	45,328
Total number of miles run.....	573,956

The income of the road for eleven months to November 30, 1846, has been,

Passengers.....	\$389,861 42
Freight.....	459,365 18
Mails, express, etc.....	29,191 29
Total income.....	\$878,417 87

Expenses for the same period have been as follows:—for

Road repairs.....	\$80,293 25
Engine repairs.....	48,909 25
Car repairs.....	40,544 06
Building, etc.....	16,195 02
Transportation expenses.....	202,524 45
General expenses.....	21,213 77
	412,679 80

Net income.....\$465,738 09  
The amount of earnings for December, 1846, have been \$76,000, which, added to the receipts for eleven months, will make the gross receipts of 1846, \$954,417 89, and an increase over the year 1845, of \$140,937 89.

## NOTE I.

When the railways on the most direct routes from Chicago to Boston and New York shall all be completed and furnished with heavy iron rails the traveller can pass from the former to New York in thirty-four hours, and in thirty-six hours to Boston, including all necessary detentions.

	Miles.	Conveyance.	Hours.
From Chicago to Detroit,	285	Day train	10
" Detroit to Niagara Falls.....	228	Night train	8
From Niagara Falls to Rochester.....	75	" "	21
From Rochester to Alb'y,	250	Day	81
" Albany to N. Y....	150	" "	5
" Chicago to N. Y....	987		34
" Albany to Boston, extra.....	52		2
To Boston from Chicago, 1039	miles in		36

On the completion of the Great Western, and the Syracuse and Oswego railways, the passage may be made from New York to Detroit, via Oswego and Hamilton, in thirty-six hours; from New York to Chicago in forty-eight hours; from New York to the Mississippi in sixty hours; and all the way to New Orleans in seven days, as follows:

	Miles.	Conveyance.	Hours.
From N. Y. to Albany....	150	Night steamer	8
" Albany to Oswego....	168	Day railway	8
" Oswego to Hamilton, 160		Night steamer	12
" Hamilton to Detroit, 185		Day railway	7
" Detroit to New Buffalo.....	240	" "	10
From New Buffalo to Chicago.....	45	Night steamer	3
Total.....	948		48

From Chicago to Galena in 10 hours, and by steamboat to New Orleans in five days.

Weather Table kept at Toronto, Showing the Amount of Rain, Snow, and Fair Weather, during each year, from 1840 to 1846, Inclusive.

Year.	No. of wet days.	No. of snowy days.	Perfectly fair.	Toronto Day frozen over.	Ice gone from Toronto Bay.
1840	97	56	213	6th December.	28th March.
1841	80	46	239	18th December.	12th April.
1842	89	55	221	Not noted.	17th March.
1843	83	73	209	13th Dec'r, but broke up again.	23d April.
1844	106	41	219	18th December.	Not noted.
1845	97	47	221	3d December.	Not noted.
1846	103	43	219	14th December.	8th April.

NOTE.—Any day on which rain falls, whether more or less, is noted as a wet day. The same observation applies to snow.

Severe cold seldom lasts more than three days successively during the winter; the weather then moderates for a few days, succeeded by a sharp frost. It is never so severe in Canada West as to put a stop to out door employment.

Greatest depth of snow three feet, seldom over two feet, the average depth about one foot.

## Statement Showing the Increase of Business on Various Railways in the United States.

Name of railway.	Year.	Amount of net revenue.	Year.	Amount of net revenue.	Increase.
Boston and Lowell.....	1836	\$22,450	1845	\$41,256	\$18,806
Boston and Worcester.....	1842	45,174	1845	59,431	14,257
Western.....	1842	61,517	1845	110,715	49,198
Eastern.....	1842	37,592	1845	58,327	20,735
Boston and Providence.....	1842	30,911	1845	49,457	18,546
Boston and Maine.....	1842	19,150	1845	33,245	14,095
Nashua and Lowell.....	1842	9,903	1845	18,608	8,705
New Bedford and Tannum.....	1842	8,103	1845	12,809	4,706
Utica and Schenectady.....	1837	48,194	1845	65,879	17,685
Utica and Syracuse.....	1843	23,568	1846	40,297	16,629
Andover and Rochester.....	1843	22,073	1846	45,901	23,828
Canaan and Amboy.....	1843	45,350	1849	106,750	61,500
Columbia and Philadelphia.....	1835	57,335	1840	112,317	54,979

## CLIMATE OF CANADA WEST, AND THE HIGHEST AND LOWEST TEMPERATURE, NUMBER OF WET AND SNOWY DAYS FROM THE YEAR 1840 TO 1846, INCLUSIVE.

Year.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly mean.
1840	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1841	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1842	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1843	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1844	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1845	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°
1846	18°	23°	33°	43°	51°	60°	60°	60°	54°	45°	36°	25°	41°

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.  
Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.  
July 31—3m  
ROBERT GRACIE.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron* only. Address  
SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.



**NOTICE TO CONTRACTORS.—ANDROS-COGGIN AND KENNEBEC RAILROAD.** Proposals will be received at the Treasurer's Office in Waterville, until the 25th of September next, inclusive, for the Grading and Masonry of the 3d Division of this road, extending from East Readfield to Waterville, about 30 miles.

Also, for such sections of the 2d Division as shall not be previously disposed of.

Profiles will be ready for examination on the 20th of September, and any information respecting the line can be obtained on application to the resident Engineers.

On the 24th of September the Engineer will be at Winthrop, and will be prepared to accompany contractors over the line of the road.

HOBERT CLARK, Agent A. & K. R. R.  
EDWARD APPLETON, Engineer.

Railroad Office Lewiston,  
August 25th, 1847.

3437

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

2m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

##### WELDED WROUGHT IRON TUBES

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2300 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

**SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars.** The Subscriber is engaged in manufacturing Spring Steel from 1 1/4 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

**RAILROAD IRON.—400 TONS ENGLISH,** 60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,  
68 Broad Street, New York.

1m37

**FOR SALE.—300 TONS (10 MILES) FLAT** Bar Rail, in parcels or wholesale—section 2 1/2 inches wide by 1/2 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,  
Wilmington, Del.

1m37

**RAILROAD IRON.—500 TONS OF BEST** quality Bridge Rails, 53 pounds to the yard, to arrive, and for sale by

A. & G. RALSTON,  
No. 4 South Front Street, Philadelphia.

Also, a 2-hand Locomotive Engine, of Baldwin's make, for sale low.

September 8, 1847.

3437

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 22 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

2v19 1y

#### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabeth town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

.. The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Euting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

#### MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

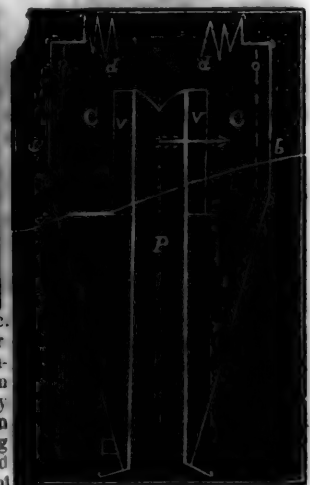
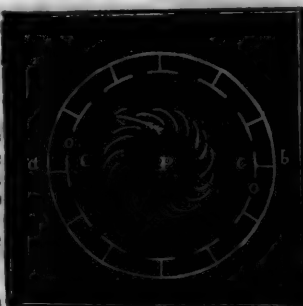
##### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
a45 Patterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =		
68,696 ft. b.m., at \$10 =		\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =		
4,403 ft. b.m., at \$13 =		57 24
13,000 Spikes = 2,250 lbs. at 44 cts =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 331f

## LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

### ENGINEERS' AND SURVEYERS'

#### INSTRUMENTS MADE BY

EDMUND DRAPER,

Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
124f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.  
1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,  
149 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolser of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

# **ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—**

for sale or imported to order by the subscriber.  
These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.		
11	4½	13	5	10	24	-	50	15-16	20	
13	3½	9	3	8½	16	-	27	11-16	13½	
14	3¼	6	11	7½	12	8	17	9-16	10½	
15	2½	5	2	6½	9	4	13½	1-2	7½	
16	2¼	4	3	6	8	8	10½	7-16	7	

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schnylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLCOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
1y25 Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

**G. A. NICOLLS,**  
1y45 Reading, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROE, Supt of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] **G. A. NICOLL,**

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,]

**T. L. SMITH,**

Jersey City, November 4, 1845.

**N. Jersey Railroad and Transp. Co.**

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,]

**JOHN LEACH,**

Jamaica November 12, 1845.

1y19

Supt Motive Power

# **THE SUBSCRIBERS, AGENTS FOR**

the sale of

Codorus,

Glendon,

Spring Mill and

Valley,

} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**

a45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.

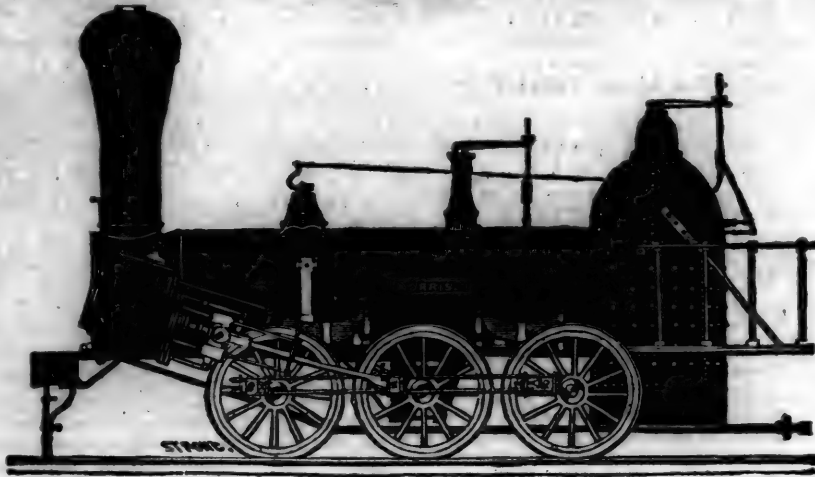
1y10

New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " (× 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, cash on delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly.

35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by

A. & G. RALSTON  
Mar. 20th 4 South Front St., Philadelphia.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York.

**TO LOCOMOTIVE AND MARINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.

This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 119 Fulton street, New York.

J. BALL & CO.

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 9 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland.

WALDO HIGGINSON, Agent





**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD.**—Distance 84 miles—

connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon.....	\$1 00
" " " Xenia.....	1 50
" " " Springfield.....	2 00
" " " Columbus.....	4 00
" " " Sandusky city.....	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 11 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47th W. H. CLEMENT, *Sup't.*

**PATERSON RAILROAD**

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at.....	New York at.....
8 o'clock a.m.	9 1/2 o'clock a.m.
11 1/2 o'clock a.m.	12 1-4 o'clock p.m.
4 o'clock p.m.	5 1/2 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/2 o'clock a.m.
4 o'clock p.m.	5 1/2 o'clock p.m.

254f Office 75 Courtland St.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/2 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 513yt

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows: Leaves Baltimore at.....9 a.m. and 3 1/2 p.m. Arrives at.....9 a.m. and 6 1/2 p.m. Leaves York at.....5 a.m. and 3 p.m. Arrives at.....12 1/2 p.m. and 8 p.m. Leaves York for Columbia at.....1 1/4 p.m. and 8 a.m. Leaves Columbia for York at.....8 a.m. and 2 p.m.

FARE.	
Fare to York.....	\$1 50
" Wrightsville.....	2 00
" Columbia.....	2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at.....5 1/2 p.m.  
Returning, leaves Owings' Mills at.....7 a.m.  
D. C. H. BORDLEY, *Sup't.*  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....	Miles. 190
Macon to Atlanta—Macon and Western.....	101
Atlanta to Oothcaloga—Western and Atlantic.....	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	To Atlanta	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62 1/2

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....0 20 0 26

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....0 20 pr. 100lbs. 35

Crockery, per cubic foot.....0 15 " " 35

Molasses and Oil, per hhd. (smaller casks in proportion). 9 00 13 50

Ploughs, (large,) Cultivators, Corn Shellers, and Sraw Cutters, each.....1 25 1 50

Ploughs, (small,) and Wheelbarrows.....0 80 1 05

Salt, per Liverpool Sack.....0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.  
F. WINTER, *Forwarding Agent, C. R. R.*  
Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally.....50 cts. per hundred.  
On measurement goods.....13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime).....80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlantic

Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily.....\$26 50

Fare through from Charleston to Huntsville,

Decatur and Tusculum.....22 00

The South Carolina Railroad Co. engage to receive

merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western

and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., *Agent.*

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects

daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly

line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tusculum, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga

for Chattanooga, Jasper, Murfreesborough, Knoxville

and Nashville, Tennessee.

This is the most expeditious route from the east to

any of these places.

CHAS. F. M. GARNETT,

*Chief Engineer.*

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAIL-**

road line—direct. Via Newark, New Brun-

wick, Princeton, Trenton,

and Bristol. (Through in

six hours.) Leaving New York daily from the foot

of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4 1/2 " p.m.

The lines proceed direct to Bristol without change

of cars, and thence by the new steamer, "John Ste-

vens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars.....3 00

Passengers will procure their Tickets at the office

foot of Liberty st., where a commodious steamboat

will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each

passenger in this line, and passengers are expressly

prohibited from taking anything as baggage but

their wearing apparel, which will be at the risk of

the owner.

Philadelphia Baggage-crates are conveyed from

city to city, without being opened by the way. Each

train is provided with a car, in which are apart-

ments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the

foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily,

except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sun-

days only at 10 p.m.—being a continuation of the

line from New York. 251f



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 15 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92	\$3.50 and \$3.00		
" " Reading, 58	2.25 and 1.90		
" Pottsville " 34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 1/2 p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2 p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

2tf Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 75
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at station.

F. C. ARMS,

Sup't. of Transportation.

Augusta, Ga., July 13, 1847.

41\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 23 1/2	1 54	1 10	1 05	0 91	0 86
Between Augusta and Knoxville & intermediate points.	0 23 1/2	1 54	1 10	1 05	0 76	0 80
Between Savannah and Chattanooga.	0 23 1/2	1 70	1 20	1 15	0 85	0 90
Between Charleston or Savannah and Chattanooga.	0 23 1/2	1 70	1 20	1 15	0 80	0 85
Between Charleston or Savannah and Decatur and intermediate points.	0 23 1/2	1 70	1 20	1 15	0 85	0 90
Between Charleston or Savannah and Knoxville & intermediate points.	0 23 1/2	1 70	1 20	1 15	0 80	0 85
Between Charleston or Savannah and Chattanooga.	0 23 1/2	1 70	1 20	1 15	0 85	0 90

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Seythes, Smiths' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs.....  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit (in casks or sacks) Pig-iron and Lined Oil, per 100 lbs.....  
Cotton. Per 100 lbs.....

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.; and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 40.]

SATURDAY, OCTOBER 2, 1847.

[WHOLE No. 580, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, October 2, 1847.

ABSENCE for three weeks past, on business, has somewhat delayed the last three numbers of the Journal—for which we shall endeavor to make amends by renewed efforts in future.

### Richmond and Ohio Railroad Convention.

We publish at length the proceedings of a convention held at Lynchburg, Va., on the 22d of September, in relation to the proposed railroad from Richmond to the Ohio river.

It is not, we are aware, as interesting to many of our readers as some other matter would be; yet we give them in full, to show how "the spirit is moving" the people at the south, as well as the north and west.

We hoped to have been present at this convention, but circumstances prevented and led us in an opposite direction, where we could see and feel the astonishing influences of the railroad system. Boston, Worcester and Springfield, especially, are central points, which exhibit the almost magical effects of the system; yet even these places are only beginning to feel and exhibit these influences.

We coincide fully with the two first resolutions adopted by the convention, and hope to see "united and vigorous efforts" by the people of Virginia to carry through this—to them—all important work; as its completion and successful operation, will ensure the early construction of others, and give an impulse to enterprise which will make Virginia what she ought to be—a prosperous and leading State in the Union; but without it, she must continue to recede from her natural and noble position,

to that of—not a second, or even third, but—a fourth rate State.

### Schuylkill Coal Trade of 1847.

PHILADELPHIA AND READING RAILROAD—Amount of coal transported during the week ending Thursday, September 30, 1847.

	Tons. cwt.
From Port Carbon.....	8,645 13
" Pottsville.....	3,873 14
" Schuylkill Haven.....	12,063 03
" Port Clinton.....	2,966 17

Total for week..... 27,549 07  
Previously this year..... 986,582 14

Total..... 1,014,132 01

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending September 23, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	5,667 03
Schuylkill Haven.....	912 05
Port Clinton.....	00 00

This week..... 6,679 08  
Previously..... 152,234 11

Total..... 158,813 19

### New York and New Haven Road.

We learn, from a New Haven paper, that "the engineers are now running their line across the harbor, including the Canal Basin, south of Union St., with a view to the permanent location of the route. More than 1500 men are employed between the western line of the city and New York. The whole route is now under contract, and the work is progressing with great rapidity."

The Keene Sentinel observes that "the stock is also taken for the continuation of the Connecticut River railroad from Greenfield to the line of Vermont. This will give a continuous railroad track from New York city to within eighteen miles of this village, where, if the inhabitants along the Ashuelot valley exercise a slight degree of energy, it will connect with the great lines north of us, as a matter of interest and we believe at a great saving of expense. A handsome subscription for the survey of the Ashuelot road is already made here, and we trust our friends in Swanzey, Winchester and Hinsdale will exert themselves to make up the balance necessary, that the survey may be made without delay; and an argument presented to the stockholders of the Connecticut River road, in favor of a connection here, which we think will prove a conclusive one."

### The Three C-C-C's.

Much interesting matter will be found in our paper to-day, says the Cleveland Plaindealer of 15th September, relating to the Cleveland, Columbus and Cincinnati railroad. We have nailed the above "C's" to our mast-head, and we are not going to slacken steam on this road, until we have in sight of the Queen city with a forty car train.

No one could have listened to the statements of Alfred Kelley, president of the board, at the Empire Hall meeting, without being convinced that this road, above all others, is destined to be one of the greatest thoroughfares for business in the whole country. It crosses diagonally the richest grain-growing State in the Union, and connects the two greatest channels of trade and travel in the west and southwest.

We are happy to see that under the present efficient head of the board, the work is to be immediately commenced. We have been favored with the following extract from the minutes of the board of the Cleveland, Columbus and Cincinnati railroad:

CLEVELAND, September 7th.

Mr. Payne offered the following resolutions:

Resolved, That the grading and bridging of so much of the Cleveland, Columbus and Cincinnati railroad company—connecting at or near the city of Cleveland, and extending in the direction of Columbus, not less than ten miles in length, as can be definitely settled upon as part of the best route—be prepared for letting and put under contract as soon as practicable. Adopted unanimously.

Resolved, That Messrs. Hilliard, Woolsey and the president, be a committee to procure competent engineers, and cause careful surveys and estimates to be made with all convenient speed, of two routes for a railroad between Cleveland and Columbus, suggested to be the most practicable and advantageous by Mr. Child. Adopted unanimously.

### The Iron Business.

We find in that excellent paper, the Philadelphia Commercial List, of 28th August, the following remarks on this important, and rapidly increasing, branch of business. The editor says that "the substitution of iron in place of wood, stone and other materials for various purposes, of late years, has rapidly increased the demand for this indispensable article to the extension of civilization. The uses have become so varied that the demand, notwithstanding an unexampled increase in the quantity of pig iron produced, has more than kept pace with the increased manufacture. Pennsylvania, being the centre, from which more than half the Union derive their supplies of iron and coal, is increasing in popula-



tion and wealth beyond any of her sister States on the seaboard. During the last three years a large number of rolling mills for the manufacture of railroad iron have been erected, and are now in successful operation. The aggregate quantity of this iron produced in 1837 will amount to nearly 60,000 tons. This quantity will require 80,000 tons of pig metal for its construction, and will consume 300,000 tons of coal in the various stages of its manufacture.

"Add to this the quantity of pig metal used in castings of various kinds, particularly for water and gas pipes, and it will be seen that the aggregate amount is very large. At the present period, the city of Boston requires 10,000 tons of cast iron pipes for their water works. The city of Charleston wants eighteen miles of gas pipes, 8, 6, 4 and 3 inches in diameter. Norristown, a place that in 1840 numbered only three thousand inhabitants, is now laying 23,000 feet of cast iron pipes, 10, 8, 6, 4 and 3 inches in diameter, 8,000 feet of them 10 and 8 inches, for the purpose of supplying the borough with water. In various other places large quantities of iron pipes are also required for similar purposes. This greatly augmented demand will have the effect of sustaining the prices of pig iron; and will, we think, satisfactorily account for the scarcity of the article at the present time in our market, and furnish a sufficient argument for the erection of more furnaces.

"In 1848 the present rolling mills, and those in progress, will be able to produce 100,000 tons of rails."

#### Railway Movements at the East.

The Boston Post thus speaks of the movements in relation to railroads in that region. It shows that, in *New*—as in *Old*—England, the remark will hold good, "that the railway system will be extended until every town, of any considerable importance, has its railway facilities."

"The Erie railroad is stated to have seven thousand laborers now at work upon various sections. It has not been determined to lay the wide gauge track, and the extra cost makes a serious item which some think its advantages will not compensate.—Proposals have been invited for grading, etc., of the Ogdensburg railroad, from Ogdensburg to Malone, which shows the directors to be in earnest, and not to be diverted from their purpose of taking the best line by local or interested clamor. The Northern extension railroad is now open thirty-seven miles beyond Concord, and Lebanon is promised to be reached by a train of cars in all December. A portion of the Concord and Montreal road, that between Concord and Meredith bridge, will probably be in readiness this fall. To-morrow the first train of passenger cars will be run over the Vermont and Massachusetts railroad, from Fitchburg to Baldwinville. The rails have been laid upon the Cheshire road from Ashburnham to five miles beyond Winchendon, but the rock cut near the junction with the Vermont and Massachusetts road cannot be laid open to grade line before October 15th. When the rails can be laid there, a train of cars will meet no impediment until Fitzwilliam is reached. An unexpected delay has arisen from the same cause—a heavy rock cut—upon the Providence and Worcester railroad, which cannot be open for travel until the middle of October. It is said the two ends of the road are nearly ready for the trains, and might be put in operation in a few days. The Salem Gazette says the work on the Essex road is advancing at such a rate as will insure its being ready for the rails in December.

"The Lawrence and Manchester railroad subscription of stock resulted in three millions of dollars

being subscribed for half a million of capital. Londonderry and Derry are striving for the location of this road to suit their respective wants of railroad facilities. Mr. Not is making a final survey and location, so that a commencement will soon be made upon the grading and bridging. In view of this new line of railroad between Boston, Concord and New Hampshire, Vermont, etc., the market value of Lowell railroad stock has declined materially, with sales at 16½ per cent. advance. Worcester railroad stock has fallen also, for the reason that a large purchase of land at a high price has recently been made, which is reported to have been offered to the corporation a few years since at much lower rates."

#### Annual Report of the Harrisburg and Lancaster Railroad Company.

We have received a copy of the annual report of this company—from which we learn that the working condition and machinery of the road have been much improved during the past year—and also that its financial condition is assuming a more promising aspect.

It will be seen by this report that the company have assented to the proposed tax on tonnage, as provided in the charter of the Pennsylvania Central railroad, and thus secured its connection with that important work, and also its ultimate prosperity.

The meeting of the stockholders was held at their office in this city, on the 3d of September, when the president of the board of directors presented and read to the meeting the annual report for the year ending August 31st, 1847.

#### REPORT.

The board of directors of the Harrisburg, Portsmouth, Mounjoy and Lancaster railroad company, beg leave to submit to the stockholders their annual report, showing the condition of the company on the 1st day of September, 1847, and tabular statements of the business for the past fiscal year.

It will be seen from the statements annexed, that the receipts of the company from all sources have been \$114,030 47, for the year ending September 1, 1847, being an increase of \$20,926 66 over those of the previous year.

Since the last annual report of the directors, the unfinished part of the road has been completed, and the whole line from Dillerville to Harrisburg, has been repaired and put in complete order.

The bridges and culverts along the road have all been kept in good repair. The two stone piers, mentioned in the last report as then being built under the bridge over the Swatara creek, have been finished, and the bridge itself has been thoroughly repaired. This bridge is now in so good a condition, that it will in all probability last for a number of years, with but little, if any, expense to the company.

The board have constructed two additional trestles under the Conawago bridge, taken out a portion of the old timber and replacing it with new, and have relaid the flooring and otherwise repaired and strengthened the structure. The bridge across the little Conestoga creek, and that over the small canal at Middletown, have both been renewed.

The tunnel near Elizabethtown, the only one on the road, is a well built structure; it is now in good condition and has been kept well drained.

The weight scales at Harrisburg and Dillerville, are in excellent order. The old scales at Dillerville were recently taken up, and new ones laid in their place, on granite foundations. These scales were manufactured by Messrs. Ellicott & Abbott, and have proved in all respects equal to those on the company's road near Harrisburg.

In consequence of the increase of business over the road, the old sidings at Dillerville have been removed, and a new turnout, over 1500 feet in length, is now in process of construction, which will greatly facilitate the business at that point. There has been a new turnout laid down at Highspire, upwards of 500 feet long. The passenger trains now pass each other at this place, instead of Middletown, the former passing place. By this new arrangement the morning train from Philadelphia is always enabled to make a considerable gain of time, frequently reaching Harrisburg before the leaving of the afternoon train for this city. The other train, (the night line) from Philadelphia, now reaches Harrisburg before the 8 o'clock morning train leaves that place, furnishing in this way, another important accommodation to the travelling public.

The real estate, and other property of the company at Harrisburg, have been much improved since the last annual report. The water slips at that place have been cleaned out, and the wharves repaired. Two of the warehouses have also required particular attention; the foundations which had given way have been in part rebuilt, the flooring has been repaired, and part of the superstructure replaced with new timber. New curve tracks have been laid down to all the warehouses. The property of the company at this place is large and valuable. It is advantageously situated on the Pennsylvania canal, and will become the place of connection between the road of this company and the Pennsylvania railroad. It now rents for \$1950 per annum.

The passenger depot at Harrisburg will require some alterations and improvements. It is not sufficiently large to accommodate the travelling public, and protect the cars from the weather.

The machine shop and machinery have been thoroughly repaired. A new and powerful sliding lathe for turning and drilling has been put up, which will greatly facilitate the operations of the workmen.

In consequence of the underwash on the river bank, from the frequent freshets in the Susquehanna, the board of directors have found it necessary for the preservation of the road, to build a slope wall a considerable distance along the bank of the river. This wall is now nearly completed.

Since the road has been substantially improved and completed, the running time for the passenger trains between Harrisburg and Dillerville seldom exceeds two hours, including stoppages. Previous to this improvement it was frequently three. This increase of accommodation to the public, has largely promoted the interests of the company, by increasing the travel over the road. The com-

pletion of this work of improvement also enabled the company to enter more extensively into the transportation of freight, and arrangements were accordingly made for that purpose. It was found necessary from the great increase of business, in the way both of passengers and freight, to procure more powerful engines to do the business of the road.

A contract was accordingly made with M. W. Baldwin, Esq., on the 10th of February last, to build for the company, a heavy six-wheel connecting freight engine, to be finished in time for the commencement of the spring business. This engine, called the Washington, was completed and running on the road in less than five weeks from the period of first making the contract. The work performed by this engine when in use, has been found to be more than equal to any other three of the company's best engines; while the running expenses of the Washington for each trip, was but one dollar more than that of each of the smaller engines. The capacity and power of the Washington have fully met the expectations of the board, and her performance thus far entirely sustains the guarantee of the maker.

Another contract was subsequently made with Mr. Baldwin for an eight-wheel engine, with four driving wheels connected, combining both power and speed, to be used for both passengers and freight.

This engine was placed on the road the 22d of August last; it has not as yet been sufficiently tried to test its power and speed. The board, however, have no doubt its performance will prove quite as satisfactory as the other, for the purposes intended.

The cost of these two engines is \$14,093. Two of the old engines being no longer needed, have been disposed of. The other locomotives belonging to the company, six in number, are all in good order, and will require but little repair for the coming year.

The board of directors take great pleasure in being able to make an exhibit to the stockholders of the financial affairs of the company, in their present greatly improved condition. The difficulty and embarrassments, under which they labored for a long time, have been almost entirely removed. The debt due the Messrs. D. & J. Salomons, of London, which was secured by the assignment, has been paid off, and the lien removed. The trustees under this assignment, have therefore been enabled to restore to the board of directors the control of the property and income of the company, which are now under their exclusive management and direction. This important arrangement was accomplished in June last, by borrowing \$40,000, at an interest of 6 per cent payable in 10 instalments, of \$4,000 each; the last falling due on the 15th of June, 1848. Two of these instalments, amounting to \$8,000, have been already met at maturity. After applying the proceeds of the above loan to paying the claim of the Messrs. Salomons, amounting to \$36,072 29, the balance was paid to Messrs. Betts, Pusey & Harlan, in satisfaction of a judgment which they held against the company.

The directors are unwilling to let this op-

portunity pass, without expressing their thanks and those of the stockholders, to the trustees (Messrs. Fraley, Lex & Linnard,) for their faithful discharge of the duties devolving on them by virtue of the trust referred to, and for the courtesy and fairness which has characterized their intercourse with the board, during the whole time of its existence.

In reference to the business of the road for the past year, the board believes that the stockholders have great reason to congratulate themselves with the result. Although the general expenses may appear large, they will bear in mind, that since the last annual report, the board of directors have purchased two new and powerful engines, at a cost of over \$14,000, which are worth that money at the present time; they have also paid near \$3,000 damages for using patent curves. It will further be seen by the last year's report, that the expenses for August, 1846, were not included in the expenses for the last fiscal year. The new track, which was not then finished, has been since completed at a cost of upwards of \$20,000. These extra expenses, amounting to more than \$36,000, should not be estimated in the ordinary expenses of the road.

The great objects for which the board have been for a long time anxiously laboring, have been accomplished, viz: the renewal and improvement of the road, and the raising of the assignment. The company is now enabled to work the road at much less expense than formerly; and in addition to this, the business over it has increased and must still further increase largely; so that hereafter there will be, from the profits of the road, a considerable surplus left after paying the current expenses and the interest on the loans. The surplus the board think should be applied to the liquidation of the present floating debt of the company, amounting to only \$47,000.—Having accomplished this desirable result, regular dividends of the profits to the stockholders may be expected, without any apparent probability of their interruption for the future.

An energetic commencement has already been made in the construction of the Pennsylvania railroad; and as the value and importance of the road belonging to this company is greatly increased by the connection with that great undertaking, the board beg leave to refer the stockholders to the 11th section of the Act of Assembly, passed April 13, 1846, incorporating the Pennsylvania railroad company: which section provides for the connection of that road with this company's road, in the following words:

"Beginning at and uniting with the western terminus of the Harrisburg, Portsmouth, Mountjoy and Lancaster railroad, in the borough of Harrisburg, provided said Harrisburg, Portsmouth, Mountjoy and Lancaster railroad company shall be subject to, and consent to the same rate of tax on tonnage, for the use of the State, as is provided in this act to be paid by the Pennsylvania railroad company; and in case the said Harrisburg, Portsmouth, Mountjoy and Lancaster railroad co. should not agree to comply with these conditions within three months after the distance of fifteen miles from Harrisburg, westward,

shall bona fide be put under contract, the said Pennsylvania railroad company are authorized to connect this road with the Columbia railroad, at or near the borough of Columbia, in Lancaster county," etc.

At a stated meeting of the board of directors, held January 2, 1847, the above provisions of the 11th section of the said act were laid before the board; and at a subsequent meeting, held August the 28th, the following preamble and resolutions were read and taken up for consideration, viz:

Whereas, the Act of the General Assembly of Pennsylvania, passed the 13th of April, 1846, incorporating the Pennsylvania railroad company, provides in the 11th section thereof, that the consent of this company shall be given to certain conditions therein referred to, within a specified period; and whereas, the board of directors of the Pennsylvania railroad company did, on or about the 15th day of July, 1846, bona fide, put under contract the distance of fifteen miles of the said road from Harrisburg, westwardly, therefore,

Resolved, That the Harrisburg, Portsmouth, Mountjoy and Lancaster railroad company hereby consents to be subject to the same rate of tax on tonnage, for the use of the State of Pennsylvania, as is provided to be paid by the Pennsylvania railroad company, during the same periods and under the same terms and regulations as is provided in the Act of the General Assembly of the State of Pennsylvania, entitled, "An Act to incorporate the Pennsylvania Railroad Company," passed the 13th day of April, A. D. 1846.

Resolved, That the president of this board be and he is hereby directed to inform the Secretary of State, and the president of the Pennsylvania railroad company, of the consent of the Harrisburg, Portsmouth, Mountjoy and Lancaster railroad company, granted by the foregoing resolution, and to furnish them with copies thereof, to be respectively laid before the Governor of the commonwealth, and the board of directors of the Pennsylvania railroad company.

Whereupon the following resolution was unanimously adopted:

Resolved, That the foregoing preamble and resolutions be referred to the stockholders at their annual meeting on the 3d of September proximo, with the recommendation that the same be adopted by the stockholders.

All of which is respectfully submitted.

By order of the board of directors,  
JOSEPH YEAGER, President.

September 3, 1847.

*Statement of the whole Receipts and Expenditures of the Company for the fiscal year, commencing September 1, 1846, and ending August 31, 1847; also with the balances of cash on hand, taken from the accounts of the trustees, to the 1st of June last, from the former and present treasurer and superintendent.*

To balance in hands of trustees 1st September, 1846.....	\$386 07
To balance in hands of treasurer, Sept. 1st, 1846.....	4,779 70
To cash received by trustees to 1st June last, from passengers, freights, mails, rents, etc.....	84,966 91



To cash received in June, July and August, for passengers, mails, rents and freights, etc.	26,584 09
To cash for sale of old materials	3,179 47
To cash from loan to remove the assignment	40,000 00
	\$159,196 24

## DISBURSED AS FOLLOWS, VIZ:

By cash paid interest on company's loans and debts	\$35,426 86
By cash paid discount on uncurrent money	201 63
By cash paid this amount of company's debts	52,404 17
By cash paid on account of new locomotives	3,500 00
By cash paid for repairing and running the road for 13 months, per statement	34,877 16
By cash paid by superintendent for materials and labor in reconstructing road	20,051 81
By cash paid insurance on property and taxes	1,349 10
By cash paid salaries, president, treasurer, secretary, office rent, stationery, etc.	3,438 60
By cash paid damages, attorney's fees, etc.	3,333 91
By cash paid expenses of trust to June 1	1,600 00
By cash paid old debts	20 00
By balance in hands of treasurer	2,993 80

\$159,196 24

VAL. HOLMES, Treasurer.

Philadelphia September 1, 1847.

## Abstract of Freight Business.

MONTHS.	Tolls east- w'd collect'd at Harrisburg.	Tolls west- w'd collect'd at Dillerville.	Whole Amount.
1846—September.	\$877 63	\$1,056 27	\$2,133 90
October.	976 26	1,063 13	2,059 39
November.	1,194 99	748 71	1,943 70
December.	1,211 89	865 91	2,077 80
1847—January.	1,804 61	1,149 77	2,954 38
February.	2,800 94	1,846 84	4,647 78
March.	2,652 94	2,987 41	5,640 35
April.	1,435 12	1,415 96	2,851 08
May.	966 32	913 00	1,879 32
June.	1,000 03	844 92	1,844 95
July.	472 16	537 54	1,009 70
August.	385 19	534 45	919 64
	\$15,778 06	\$14,183 90	\$29,961 96

## Abstract of Passenger Business

MONTHS.	Miles travelled by passenger's	Equiva- lent of through passenger's	Average receipt from each passenger.	Whole amount from passengers.
1846—Sept.	164,234	4,562	\$1 40	\$6,386 85
Oct.	182,304	5,064	1 40	7,089 59
Nov.	128,065	3,557	1 40	4,980 34
Dec.	85,577	2,377	1 40	3,326 95
1847—Jan.	97,170	2,699	1 40	3,778 85
Feb.	91,139	2,531	1 40	3,544 29
Mar.	162,474	4,513	1 40	6,318 45
April.	235,948	6,554	1 40	9,175 77
May.	191,332	5,314	1 40	7,440 63
June.	188,090	5,224	1 40	7,314 54
July.	157,332	4,370	1 40	6,118 46
Aug.	172,917	4,803	1 40	6,724 54
	1,856,582	51,568		\$72,199 26

## Abstract of Receipts from passengers, freight, rents, mails, etc., for the past year.

Receipts from passengers	\$72,199 26
" freight	29,961 98
" mails	6,300 00
" rents	1,850 00
" extra freight and baggage.	539 76
	\$110,851 00
Receipts from sale of old materials, during the year	3,179 47

Total income for year.....114,030 47

This statement shows that the receipts for passengers are \$72,199 26, equal to 51,568 through passengers, at \$1 40 each.

The eastward tolls on freight amount to.	15,778 06
The westward tolls on freight amount to.	14,183 90

29,961 98

The following statement shows the amount and character of the company's loans and debts, viz:

Five per cent. sterling bonds, sold in London, redeemable in 1858, £64,500 at 4-85.	\$312,825 00
Six per cent. bonds and debts funded until 1858, in the United States.	258,582 45

571,407 45

Unfunded debt	46,602 70
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618,010 15

Unclaimed interest due	450 00
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618,460 15

VAL. HOLMES, Treasurer.

Philadelphia, Sept. 1, 1847.

A Statement of the General Expenses of the Company from 1st August, 1846, to 1st September, 1847 (13 months), including the amount expended by the superintendent for repairs, materials, workmen, & reconstructing road, etc.

1. Repairs of roadway, bridges, culverts, and superstructure, between Elizabethtown and Dillerville.	\$2,534 05
2. Repairs of roadway, bridges, culverts, slopewall and superstructure between Elizabethtown and Harrisburg.	6,883 93
3. Repairs and improvement of depot, machine shop, warehouses, water slips, water stations, new weigh scales, etc.	1,913 16
4. Repairs of locomotives, tenders, and construction of new turning lathe.	4,640 04
5. Repairs of baggage and passengers, cars, etc.	1,189 96
6. Expense of wood.	4,357 88
7. Expense of coal.	706 43
8. Expense of oil and cotton waste.	940 38
9. Wages of enginemen and firemen.	4,508 25
10. Wages of laborers engaged in pumping water, tending switches, sawing wood, watching depots and bridges.	3,065 88
11. Expense of carrying mail to postoffices.	250 00
12. Salaries of superintendent, collectors and conductors.	3,549 81
13. Hire of locomotives and cars to D. Lapsley, trustee.	1,017 39

34,877 16

14. Amount paid by superintendent for materials and labor in reconstructing company's road.	20,051 81
15. Insurance on property, and taxes.	1,349 10
16. Salaries of president, treasurer and secretary, with office expenses, rent, printing and stationery, in Philadelphia and Harrisburg.	3,438 60
17. Damages, attorney's fees, & legal expenses, etc.	3,333 91
18. Expenses of trust, paid trustees and secretary to June 1 last.	1,600 00
19. Old debts paid, incurred prior to 7th September, '42.	20 00

29,793 42

\$64,670 58

After the reading of the report—

On motion, it was unanimously Resolved, That the thanks of the stockholders be and the same are hereby tendered to the board of directors, for the energy, ability, fidelity and success, with which they have conducted the affairs of the company, during the last fiscal year.

On motion, Resolved, That this meeting do now adjourn, to go into an election for directors of the company, and meet again at four

o'clock, P.M., to here the report of the judges of the election.

The meeting convened at 4 o'clock, P.M., same day, when the judges reported that the following gentlemen were duly elected directors of the company for the ensuing year:

Joseph Yeager, Seth Craige, Wm. Ford, Algernon S. Roberts, Francis R. Wharton, Henry Buehler, (Harrisburg,) L. M. Tronman, John N. Lane, (Lancaster,) Robert Allen, Dr. John Holmes, David Lapsley, Geo. Taber, Robert V. Massey.

On motion, Resolved, That this meeting do now adjourn.

T. M. PETTIT, Chairman.

S. W. ROBERTS, Secretary.

JOSEPH YEAGER, Esq., was re-elected president, and VAL. HOLMES secretary and treasurer for the ensuing year.

## New England Roads.

The Boston Courier says that the railroads radiating from that city were never doing a better business than at present, and then adds:

"More is heard of the Western than any other, and more interest is generally felt in its success on account of its being the main artery, and in one sense public property. Its receipts last week were over \$30,000, and the whole gain since the 1st of December, the beginning of the present financial year, to the present time, has been over one thousand dollars for every working day. This result is gloriously triumphant."

Very true, but the beginning is hardly yet.—[Ed. R. R. J.]

## Report on the Preliminary Surveys for the Milledgeville and Gordon Railroad.

ENGINEER'S OFFICE, Aug. 31, 1847.

To Col. Seaton Grantland, Dr. Tomlinson Fort, and Col. William S. Rockwell, Committee on Survey, Milledgeville and Gordon Railroad.

GENTLEMEN:—The survey of a route for the proposed railroad from Milledgeville to Gordon, which was entrusted to me, having been brought to a close, and the estimates of cost being also complete, it becomes my duty to submit the following

## REPORT.

The survey was commenced on Tuesday, the 3d instant, at the east end of the turn out at Gordon, and carried in the direction N. 42 E. until it approached the neighborhood of Commissioner's creek, when it was made to assume a more northerly direction. This portion of the line is not remote from, and pursues a course nearly parallel to the public road leading from Gordon to Milledgeville—the line lying on the western, or left hand side. Mr. Folsom's house is a short distance to the left, Mrs. Ganey's some two hundred yards on the right; Pattishall, who lives a short distance from the road, and near Commissioner's creek, being again a short distance on our left.

The direction of this portion of the route is too much easterly for a direct line from one terminus to the other. A line more in course would have passed considerably to the left or west of Pattishall's. But the summit between Little and Big Commissioner's creeks rises in this direction into an elevated

ridge, which, however, subsides to the general elevation of the level on which Gordon is situated, near Pattishall's house—which will account for the line we run having been preferred. It may be well to notice, that a gap exists in the ridge alluded to, which, if practicable, would give the line a much more favorable direction at the start—leaving Pattishall's considerably to the right, and reach Commissioner's creek, near King's. Success by this route was too uncertain to warrant, considering the time at command, its being tried.

In fact, the point at which this ridge was crossed, and which it is believed is considerably lower than the gap alluded to more to the left or west, was found to be at such an elevation above the creek—viz., one hundred and twelve feet, (and forty-five feet above Gordon,)—as at once to throw us upon the adoption of a rather high rate of grade—or submit to an additional expense for grading, which it was believed circumstances did not render advisable.

While alluding to the subject of grades, it may be as well to add, that while a high rate of grade limits the capacity of a road—or, to afford an enlarged capacity, involves the necessity of a more perfect and expensive superstructure, and especially a rail of greater strength and weight, and heavier and more expensive engines and equipments, and consequently increased wear and tear and expense of maintenance for both road and machinery—still, it should be considered whether, in this case, the amount of business is likely to exceed the limited capacity which will be the result of high grades, with a road and equipments of the ordinary character.

The highest grade adopted on any of the northern roads, with a view to locomotive power, is eighty five feet to the mile. This is upon the Western railroad between Boston and Albany. The immense business done upon that road is the result of the superior character and cost of the road and equipments already alluded to. The highest grade yet adopted in this State is believed to be about forty feet to the mile. The maximum upon the Central railroad is thirty feet—with engines weighing from fourteen to seventeen tons, twenty cars, carrying eight hundred bales of cotton, are taken over the road. It will be perceived at once how much this could be reduced, and still come within any demand upon the business capacity of the work which is had in view.

The fact, which it may be well to notice, that a line carefully surveyed in 1838, under the direction of L. O. Reynolds, Esq., by order of the Central railroad company, to test the practicability of carrying the Central railroad by the way of Milledgeville, and passing over ground not varying very considerably from that occupied by the present line for a large portion of the distance, was estimated to cost for grading alone, at a maximum of thirty feet, \$25,000 per mile, shows in itself the necessity of yielding to pretty high grades.

Believing, therefore, that the amount of business likely to offer did not demand, and

that the means at command would not warrant the adoption of light grades, the survey has been made with reference to grades of sixty feet to the mile, and on this the estimates are predicated.

I would distinctly state in this connection, however, that it is by no means certain that future examinations will not lead to such developments as will enable the grades to be somewhat reduced, without materially affecting the distance or cost. I feel quite confident, in fact, that no grades of much over fifty feet to the mile will ultimately be required—still keeping the expense within the limits of the present estimates. Indeed, without departing from the line surveyed, the grades might be reduced to fifty-two and eight tenths feet per mile, (or one foot to the hundred,) without vastly increasing the cost.

I will take occasion here to dissuade from any precipitancy in adopting this or any other route—feeling sensibly, as I do, the importance of taking the first step aright. While the survey just closed may, I think, pretend to all the accuracy and detail of preliminary surveys in general, it would be rather remarkable if the best route throughout had been selected. Other routes, and amendments of the route surveyed, possessing high claims to favor, are believed to exist, which will be particularly alluded to before this report is closed. Until these examinations are made, the present estimates may be relied upon, and any improvements in the line which may reward further investigation, will be clear gain. In other words, we are now viewing the matter in the most unfavorable light in which it can in any event be presented.

The line enters Commissioner's creek swamp about half a mile above, or west of the road from Gordon to Milledgeville. The swamp at this point is found to be about seventeen hundred feet, or one third of a mile in width. For one-half of this distance it will be advisable to support the road on trestles, placed at intervals of ten feet, and supported in their turn upon piles, driven to a firm foundation. The height of the bridge will require to be from fifteen to eighteen feet. If the elevation of the bridge could be governed by high water mark, eight feet would be sufficient. This additional elevation is necessary in order to support the grade, owing to the fact already alluded to, of the crest of the hill, or rather of the table land lying between the creek and Gordon, being one hundred and twelve feet above the creek.

The line emerges from the swamp at the mouth of a hollow, which had been held in view as affording possibly a means of surmounting the ridge on the north side of Commissioner's creek, and between that and Beaver creek, which would have favored the general course of the line. A line was carried up this hollow until the summit was attained a short distance west of John Ganey's house, when finding it to be one hundred and thirty-eight feet above the creek, and involving us in a lengthy cut of thirty-five feet, it was abandoned. This line was productive

of the fact, that no eligible line could be had in a direct course across this ridge. The alternatives presented were, to deflect to the left, and follow a branch or hollow which would ultimately conduct us to the summit of the ridge in question, at a point which would enable us to head Beaver creek, leaving it entirely on our right; or to drop down to the mouth of Beaver creek two and a quarter miles below the Gordon and Milledgeville road, and leave the ridge in question on our left. Provided Gordon were still made the point of departure from the Central railroad, it was believed this course would add considerably to the distance. The former plan was therefore adopted, and the hollow or branch alluded to, which runs into Commissioner's creek something less than three-quarters of a mile above the Gordon and Milledgeville road, was pursued to its head—by which the summit was reached with a short cut of thirty-one feet. The line up this hollow, with the exception of the cut at its head, is highly favorable.

Having attained the ridge between Commissioner's and Beaver creeks, the direction of which is here such as to suit our purpose, the line then pursues it to what may be called the summit between Commissioner's and Camp creeks—and which is the highest ground reached during the survey. This is a prolongation of the Scotsborough ridge. The line is here about one mile and a half to the left or west of the Gordon and Milledgeville road. At several points on this ridge, between the line and Pondexter's house, Milledgeville can be distinctly seen—a sufficient proof of the elevation, did not our level notes apprise us that in the depression where this ridge is crossed by the line, the elevation is four hundred and ninety-eight feet above tide, one hundred and fifty-five feet above Gordon, and one hundred and eighty-eight feet above Milledgeville.

Having passed this ridge with a moderate cut, the line descends along the slope to Camp creek, reaching it near where the bend is made in its general course from south east to north east, in what is called the Ivy settlement. After pursuing its right side for a short distance, the line crosses it near the residence of Charles Ivy, and continues down along the north western slope, over inviting ground, until a point in Col. Grantland's plantation is reached, where the valley of Camp creek is left, and the line carried at the maximum grade in a tolerably direct course to the depression in the ridge between Camp and Fishing creeks, in front of Oglethorpe University.

The average descent of Camp creek, so far as pursued by the line, was found to be about twenty-two feet per mile.

The ridge between Camp and Fishing creeks has, I believe, been always regarded, by those conversant with such matters, as the principal obstacle on the route, and by some, entirely unattainable, with practicable grades, at a reasonable outlay. The result, at this point, may then be regarded as favorable. A cut of thirty feet across the ridge, in front of the University, enabled us to reach and cross



Fishing creek with a short fill of about forty feet.

The route from the College ridge to Milledgeville follows a small branch, which has its rise at the college spring. After pursuing it for about half a mile, the branch bears to the left. At this point it crossed by the line, which pursues a direct course to Fishing creek, and after crossing it about three hundred yards above the cemetery, terminates on the Government square, near the intersection of Greene and Columbia streets, at the elevation of three hundred and ten feet above tide—being thirty-three feet lower than Gordon. By reference to the map it may be seen that by starting from the Central railroad about one mile below Gordon, the distance would be lessened about half a mile, and the ground is believed to be equally favorable. But it will be worth while to consider, whether this would warrant the establishment of a new depot, with a warehouse and other conveniences.

On the subject of the best site for the depot in Milledgeville, little need be said at this time. That is a subject for deliberate consideration. The site which will afford the greatest convenience to the citizens generally, with the least outlay, should, of course, be adopted. Fishing creek, it may be as well to state, was crossed, under favorable circumstances, in reaching the terminus upon the Government square. A different route was pointed out, crossing Fishing creek above the cemetery, and running up Wilkinson street to near Greene street, from which point a horse track could be run to the Penitentiary along a hollow leading in that direction, at a small expense. Whether the City Council would grant the privilege of establishing a depot at this point, coupled with that of using locomotive power in the city, or whether it would comport with the interest and safety of the city, is for others to form their conclusions. The cost, it is believed, would be something more, though not amounting to serious objection. Should a depot be established without the business part of the city, any apprehensions, (and such appear to exist with some,) that business would leave its accustomed channels and resorts, and collect around the depot, are, judging from all experience on that subject, utterly groundless.

The routes which have been alluded to, as deserving examination previous to the definite location of the road, I will now proceed in a few words to notice.

The first would leave Gordon at the same point, and taking a more westerly course, pass through the gap west of Pattishall's, cross Commissioner's creek, as high as where William Harrold lives, and from thence grading up along the northern slope of the creek, reach a stream called Muddy Branch, which would bring us upon the present line about six miles from Gordon, and near Betsy Smith's. The line as run passed to the left of her house, but it is believed that the summit between Commissioner's and Camp creeks, could be crossed on equally favorable terms, and effect a small saving in distance, by passing to the right of Betsy Smith's, and

crossing the summit about a third or half mile east of the present line.

Another route is to drop down to the mouth of Beaver creek, and thence up that stream to near the Gordon and Milledgeville road, thence taking the general direction of the road, cross the summit between Commissioner's and Camp creeks, (or rather it might here be called the summit between Beaver and Camp creeks,) a little west of Poindexter's, thence passing near William Woolsey's, and leaving the hollows of Black creek on the right, fall gradually into the valley of Camp creek, and join the present line near Mrs. Bower's ford. A route might be worth examination, from Poindexter's, crossing some of the heads of Black creek, and leaving Hubbard's to the left, cross the Scottsborough ridge near Wiley Cullens', and thence pursuing a small branch past Joseph Slade's, again join the present line in the valley of Camp creek. It is feared the ridge at this point will prove too high, however.

A route has been suggested by a gentleman whose opinions on all subjects carry much weight, which, instead of crossing the Scottsborough ridge at Cullens', would fall into the head of Reedy creek, and leaving Scottsborough to the left, or west, cross Camp creek near its mouth, and thence follow up the Oconee to Milledgeville. The result of a partial reconnaissance of this route was not unfavorable.

It is highly probable that the route crossing Commissioner's creek at the mouth of Beaver creek, and thence as indicated, passing near Poindexter's and Woolsey's, would afford easier grades than the route surveyed, but the distance, it is believed, would be unfavorably effected. By starting from the Central railroad, however, about one and a fourth miles below Gordon, the ground being equally favorable, this route would be shortened to that extent, in which case it might not compare very unfavorably with the present line in that respect.

A different route from that surveyed from Camp to Fishing creeks, will now be noticed, of which a careful reconnaissance was made. This would leave the present line in the valley of Camp creek, at a point near Col. Grantland's quarter, and bearing to the left up a small stream which heads on the south side of the college ridge, and from a third to a half mile in the rear of the college, cross the Midway ridge at a highly favorable point near Mr. Orme's gin house, and thence falling into the south prong or hollow of Bailey's branch, pursue that to Fishing creek, a short distance below the Macon bridge.

I advance the opinion with much confidence, that this, all things considered, will afford the best line from Camp to Fishing creek, and involve also, less danger of encountering rock in the summit cut, which is a matter that should be specially attended to in the final location of this part of the line, as indications of rock (mica slate,) were observed.

There is one other route to which I will barely allude. This would cross the Oconee

near Milledgeville, and pursuing the valley of the river over extremely favorable ground, form a junction with the Central railroad at station no. 14. The distance would be about twenty-two miles. The grades could be kept within the lowest desirable maximum. The bridge across the Oconee might be so constructed as to be used (as a toll bridge) for public convenience. The rate of cost per mile of the line surveyed would be more than sufficient to construct the road on this route. It is for those interested to consider, whether this connection would afford any superior advantage over the connection at Gordon. The following is an extract from the report of L. O. Reynolds, Esq., to the Central railroad and Banking company, on the survey before alluded to:

"It may be proper here to mention that the country on the east side of the Oconee affords a most favorable route for the construction of a railroad from Milledgeville to our line. The grade would be almost one uniform inclination, and the low lands bordering on the Oconee swamp, would require little excavation and embankment to form the road bed."

The plan of superstructure upon which the estimate is based, is that of the Central railroad. Any other form would not materially effect the cost.

The rail which is proposed, is the flange rail, of thirty-six tons to the mile. This form of rail was invented by a distinguished engineer of this State, and thus far has been only used in Georgia. But experience thus far has shown, that at a small cost it affords much of the smoothness and durability of a good T iron. The spike holes instead of perforating the centre of the bar, as in the ordinary plate iron, are through what is called the *flange* on the outer edge of the bar; this flange being sufficiently thin to admit of the spike heads being driven below the surface of the rail. This form of iron has no tendency, like the flat bar, to break at the spike holes, or to form *snake heads*. Much of the roughness of the flat bar is owing to the weakness of the iron at the spike holes, and in travelling upon a flat bar road, a concussion or jar may be felt at almost every spike. The case is very different with the flange rail.

With the abundance of excellent timber which the forests of Georgia afford for continuous bearings, the flange rail will be found to approach much nearer the T pattern, laid on detached bearings, or cross ties simply, than might be supposed.

A map on a scale of two thousand feet to the inch, and a profile on a scale of four hundred feet to the foot vertical, and eight thousand feet to the foot horizontal, are herewith presented. By the former it will appear that the distance is sixteen and a half miles, though the distance as measured was seventeen and a quarter. A located line will not exceed the distance first mentioned.

In preparing the estimates, the line has been divided into sections of three miles each, except the last, which is two and a quarter. As this exhibits the relative cost of different

portions of the line, the estimates are presented in this form. To cover the contingency of encountering rock, the whole distance as measured has been estimated, except for the superstructure, which is estimated at 16½ miles.

To be Continued.

#### RAILROAD CONVENTION.

The delegates appointed by the several towns and counties, interested in the Richmond and Ohio railroad, met, pursuant to notice, in the Universalist church, in Lynchburg, on Wednesday, the 22d of Sept., 1847.

On motion, the meeting was temporarily organized by calling to the chair Major Jas. Garland, and appointing as secretaries Wm. M. Blackford and Robert H. Glass.

The proceedings were opened with prayer by the Rev. W. S. Reed. The following delegates appeared and took their seats:

*City of Richmond.*—C. Dimmock, R. R. Duval, Joseph R. Anderson, Thos. H. Ellis, Edwin Robinson and James Lyons.

*Lynchburg.*—Henry Davis, Rev. J. Early, John M. Speed, Richard K. Cralle, F. B. Deane, Jr., Joseph K. Irving, Dr. Robert S. Payne, Maj. Jas. Garland, R. J. Davis, Wm. T. Yancey, Dr. J. V. Hobson, W. M. Blackford, Wm. S. Reid, Jr., D. E. Spence, R. H. Gray, R. E. Manson, R. Glass, R. Cawthon, D. R. Edley, D. I. Warwick and J. Wills.

*Amherst.*—J. D. Davis, D. W. Patterson, C. P. Lee, R. M. Brown, S. M. Garland, H. W. Quarles, W. Jones, F. V. Sutton, Jas. P. Garland, R. G. Morris and E. L. Shelton.

*Montgomery.*—Dr. J. B. Radford, Maj. E. Hamet, and Col. David Barnett.

*Bedford.*—R. Allen, W. M. Burwell, W. C. Irvine, J. F. Johnson, Col. G. B. Board, J. O. Leftwich, and Dr. H. Harris.

*Campbell.*—E. B. Withers, M. B. Nowlin, J. C. Murrell, E. Page, J. Irvine and Dr. R. B. Withers.

*Wythe.*—G. C. Kent, P. S. Buckingham Cabell.—Peter Clarke, F. G. L. Buehring.

On motion of Mr. Cralle, a committee, selected by the chair, from each delegation, consisting of J. Lyons, T. H. Ellis, R. K. Cralle, Rev. J. Early, R. G. Morris, S. M. Garland, Dr. J. B. Radford, Maj. E. Hamet, W. M. Burwell, R. E. Manson, R. J. Davis, W. T. Yancey, E. B. Withers, Capt. M. B. Nowlin, C. L. Mosby, Peter Clarke, G. C. Kent and P. S. Buckingham, was appointed to nominate officers for the convention.

After a short retirement, Mr. Cralle, on behalf of the committee, reported the following officers:

James Lyons, president. David Barnett, 1st vice-president, F. G. L. Buehring, 2d do., Thomas. Ellis, 3d do., Richard G. Morris, 4th do., Robert Allen, 5th do., Gordon C. Kent, 6th do. Wm. M. Blackford, Robert H. Glass, secretaries.

On motion, the following gentlemen were appointed a committee to report upon the business, which should engage the attention of the convention, viz:—Rev. Jno. Early, F. B. Deane, Jr., T. H. Ellis, C. Dimmock, Robt. Allen, W. M. Burwell, R. G. Morris, S. M. Garland, D. Barnett, J. B. Radford, M. B. Nowlin, E. B. Withers, G. C. Kent, Peter Clarke, R. K. Cralle and S. M. Thompson.

And on motion, to enable the committee to act, the convention took a recess until half-past three o'clock, P. M.

#### AFTERNOON SESSION.

The Rev. John Early, from the select committee, made a report, which, after some debate, in which Messrs. Burwell, Cralle, Early and some others partook, was, on motion, recommitted.

And the convention then adjourned until to-morrow morning, at 10 o'clock, A. M.

#### THURSDAY, 23D SEPTEMBER.

The convention met pursuant to adjournment, and was opened with prayer by the Rev. Dr. David S. Doggett.

On motion of Mr. Deane, B. F. Sackett, of Lynchburg, was admitted to a seat in the convention as alternate delegate from Jonesborough, Tenn., whereupon Mr. Sackett presented a communication from the citizens of Jonesborough, which was read and ordered to be printed.

*Jonesborough, Tenn., Sept. 16, 1847.*

*To the President of the Railroad Convention at Lynchburg, Virginia.*

At a meeting held in this place on the 28th day of August last, delegates were appointed to the railroad convention to assemble in Lynchburg on the 22d inst. It was expected and anxiously desired, that the delegates so appointed would attend; yet the undersigned regret the unforeseen circumstances which render it probable that none of our delegates will be present at the deliberations of your body. The undersigned, being desirous that the non-attendance of such delegation shall not be attributed to lukewarmness or indifference in reference to the project of connecting the Hiwassee railroad with the Richmond and Ohio railroad, have adopted this plan of addressing you, and through you the convention. We cannot refrain from expressing the opinion that the result of your deliberations will have an important bearing upon this contemplated improvement—a project of vital moment to the people of southwestern Virginia, as well as to the people of east Tennessee.

At a convention recently held at Greenville Tenn., composed of delegates from southwestern Virginia, and Tennessee, resolutions were adopted, asking the legislature of Tennessee for a railroad charter from Knoxville (the contemplated terminus of the Hiwassee railroad) to the Virginia line; and also asking the legislature of Virginia for a railroad charter from the Tennessee line through southwestern Virginia, to some point connecting with her railroads, and both states were asked to take 3-5ths of the capital stock. A committee was appointed by said convention from each state, charged with the duty of memorializing the legislatures of their respective states.

The undersigned would respectfully express their opinion that no section of the country is more eminently calculated to sustain a railroad than east Tennessee and southwestern Virginia. Both these sections abound in the natural elements of wealth, which want for their full development but the stimulus which would be imparted to every branch of

industry, by giving to us the markets which the construction of this improvement would open to our supplies and produce. Tennessee is now the third state in the Union in agricultural products; her mineral products, her mineral resources are unsurpassed by the richest in the world; her manufacturing are everything which water power can afford.—This, moreover, is the natural route for travel from the great commercial points of the north to those of the south; and the undersigned confidently believe that, with the completion of the Nashville and Chattanooga railroad, and a railroad connection between Knoxville and Lynchburg established, the ocean and river travel would be concentrated upon this line, and it would thus become the great thoroughfare between the north and south.

As to this project, all that the undersigned deem necessary for them to say, (and which has been their object in addressing your body) is that east Tennessee *has acted*, and the friends of the enterprise are anxiously awaiting the result of the deliberations of the convention: fully apprized of the influence which that result will exert upon our legislature.—We are confident that the importance of the project to southwestern Virginia, as well as to works of internal improvement, will command from the members of your body the earnest attention which your project merits.

*Signed by Sixty-four Gentlemen.*

Mr. Deane presented a letter from the Hon. James Hall, a delegate from the city of Cincinnati, explaining the causes of his failure to attend, which was read, as follows:

*Philadelphia, Sept. 18, 1847.*

FRANCIS B. DEANE, JR., Esq.

DEAR SIR: I regret extremely that I shall not be able to meet the convention at Lynchburg on the 22d inst, as I had intended and expected when I left home. Having previous engagements to fulfil at this place and New York, I am disappointed to find that these will delay me so long, as to prevent me from reaching Lynchburg in season for the meeting. I hope, however, that my absence will be excused, as I could do little else if present that to express the great interest and sympathy entertained by the citizens of Cincinnati, in regard to the truly magnificent enterprise which you have in contemplation—and that is already expressed by my appointment. A railroad from Richmond to the Ohio river, while it would be incalculably beneficial to us, as affording a direct avenue for our commercial and social intercourse with the Atlantic coast, would not be the less interesting as bringing us into more intimate connection with the great state to which we owe more than to any other, in reference to our political existence and institutions.

The project of a railroad from St. Louis to Cincinnati is now in agitation in the states immediately interested. It is understood that the city of St. Louis, in her corporate capacity, has appropriated a half a million of dollars to the work. In Indiana the undertaking is regarded with great favor, and will receive efficient support from her enterprising people. Liberal subscriptions have been taken up at Terre Haute, Indianapolis, and other places



on the route, and we have no doubt that the work will be immediately commenced, and rapidly prosecuted in that state. In Ohio, we are not less earnestly enlisted, and have already engaged with alacrity in the preliminary measures to make a section of the road extending from Cincinnati to Hamilton, a distance of 20 miles, which will no doubt be completed without delay. The necessary acts of incorporation have been obtained in Indiana and Ohio, except in reference to a few miles in the latter state, in regard to which there will be no difficulty. In Illinois the right of way has been refused except on condition that the western terminus of the road should be at Alton, in that state—a condition so unreasonable as to be inadmissible, but we entertain no doubt, that the legislature of Illinois will reconsider this condition, and in a matter so important and national, where in so many states are interested, and such large interests involved, will do what is just and patriotic. That road will be made without delay—not only to Cincinnati, but thence to the Ohio, where we shall be most happy to meet our fellow citizens of Virginia, and hail them as collaborators in a work which promises such inestimable blessings, in promoting the industry of our citizens, developing the resources of our respective states, and rivetting the bonds of our Union.

With sentiments of respect and esteem for yourself and the gentlemen acting with you, I am, dear sir, your very obedient servant,

JAMES HALL.

Mr. Barnett presented a communication from Lewis M. Provost, Jr., engineer of the southwestern turnpike, which was read, viz:

*Lafayette, Montgomery Co., Va.,*  
September 19, 1847.

To Messrs. David Barrett, John B. Radford and Edward Hammett.

GENTLEMEN: In compliance with your request, it gives me pleasure to occupy a few leisure moments, my multifarious duties will permit, in affording you such information as I possess, in relation to the best route to be pursued by a railroad from Lynchburg to the Ohio river; the plan upon which the work should be constructed, and the probable cost per mile.

1st. As to the best route to be pursued.

Two principal routes present themselves for consideration, which may be designated as the James River and Kanawha and the Roanoke and New River routes.

The James River and Kanawha line will require grades as high as 75 feet per mile, for a distance of upwards of four miles, to obtain which some extensive tunnels would be required, involving a very heavy expenditure, and from the generally rugged character of a large portion of the country, the line would necessarily be a very costly one, and at the same time materially interfere with the interests of another improvement, in which so large an amount of capital has been already invested: I refer to the James River and Kanawha canal.

The Roanoke and New River route I am more familiar with, and have no hesitation in saying that in the whole course of my pro-

cession, I have never seen a country affording greater facilities or inducements for the construction of a railroad. For many miles the line would follow the broad and fertile valley of the Roanoke, where the cost of grading would not exceed \$500 per mile, and passing through the valley of Elliott's creek, would attain the summit of the Allegheny mountains at a grade not exceeding 60 feet per mile. The surveys which have been from this point pursue the valley of Meadow creek and Little river to New river, but I have little doubt that a better one and one saving many miles in distance can be obtained by falling into the waters of Connelley's branch, and by that valley to New river.—So far as my observations of the valley of New river extends, there are no difficulties of any great moment to be encountered.—The cliffs which would be occasionally met with would involve some considerable expense but the generally favorable character of the ground would reduce the average cost of this portion of the line below that of railroads generally. One of the strongest arguments that can be adduced in favor of this route is that it would be a common stem, as far as New river, both for the Ohio and Tennessee lines, the latter of which is by no means inferior in importance to the former. It would be extended, beyond a doubt, on the part of Tennessee; would connect with the Georgia improvements by means of the Hiwassee road and would ultimately reach the Mississippi river at Memphis. By means of these lines the mineral and agricultural resources of a country, unsurpassed in wealth by any section of the Union, would be developed, and an amount of traffic drawn upon the road sufficient to pay a handsome profit on the investment, independently of any foreign trade or travel which would be obtained.

2d. As to the plan on which the work should be constructed, and the probable cost per mile.

Two great objects should be kept in view in the construction of such a work—*speed and safety; and fortunately with those we can combine economy.* The best road for obtaining these objects is a substantial H rail, weighing not less than 60 lbs. per yard, and altho' the first cost is greater than that of the imperfect plate rail in use in eastern Virginia, the annual saving in repairs and renewals of road and machinery would far more than counterbalance the additional outlay. A single track generally, with such portions of double track as would be necessary to ensure the safe passage of trains (which could always be located where the cost was at the minimum) would be most expedient in the first instance, and as the exigencies of the trade might require, additional portions of double track could be laid.

As to the cost of the road, I am aware that various estimates have been made, ranging from 10,000 to \$40,000 per mile, the first of which is under, and the last vastly over the truth. At the present prices of labor and provisions, it would not exceed \$16,000, including the machinery necessary for the efficient working of the road.

I believe that the people of the country ge-

nerally are becoming aware of the necessity of these improvements to their welfare, and, if the proper exertions were made, a very large amount of stock would be subscribed along the line, and in the adjacent counties. The end cannot be obtained by merely opening books of subscription in the different towns and waiting till they come forward with their subscriptions, but active and well qualified agents should be appointed, who would go to every man's house, explain the nature of the advantages he would derive from the work, and solicit his subscription in proportion to his means and the benefit received. In this way an incredible sum would soon be raised, and the prosecution of the enterprise rendered certain.

In conclusion, I would remark, that were the map of the Union laid before me, with liberty to select any lines of improvement, connecting the valley of the Mississippi with tide water, I could not choose any presenting so many and such varied advantages, as the Richmond and Ohio and Richmond and Tennessee railroad. As a means of national defence they would be of incalculable advantage to the Union; by developing the inexhaustible mineral wealth of Virginia, and giving free scope for the prosecution of agricultural enterprise, they would be invaluable to the commonwealth, and as an investment they would present the certainty of a speedy and rich return to the capitalist.

I have the honor to be, very respectfully, your obedient servant,

LEWIS M. PROVOST, JR.

Mr. Buckingham offered a letter from A. McCall, of Washington county, which was read, as follows:

*Saltille, Washington Co. Va.*  
September 17, 1847.

MR. P. S. BUCKINGHAM,

SIR: With the best railroad route, from the mouth of Little river to Emory and Henry college, your means of information are better than mine. The distance thence west to Chattanooga is about 300 miles, by a track most wonderfully adapted to railroad grading. Emory and Henry college is about 1800 feet above sea level, and the descent of nearly 1000 feet to Chattanooga is very gradual and well equated the entire distance. The mean slope will not vary much from three feet per mile, nor do I believe on the route I will indicate, that any cut will be required so deep as forty feet, and not half a dozen points for a few hundred yards, requiring that depth of cutting.

Emory and Henry is situated near the south base of Walker's mountain, through which a low water pass way leads to Saltville, eight miles northward at the north fork of Holston.

This branch of the Holston runs along the southern base of Clinch mountain, westward from Saltville 60 miles, by its valley road, to its confluence with the main Holston.

The railway track leaves the north fork 8 miles above the junction, and continues along Carter's and Stanley's valleys to Bean's station, 40 miles, and still, keeping near the south base of Clinch mountain, passes Blain's

station and along the Old Wilderness road, crosses the depressed Clinch hills, to Clinch river, six miles above Kingston, at the southern base of Walden's ridge of the Cumberland mountain.

From Kingston to the *Suck*, opposite Chattanooga, the distance along the level valley is about 100 miles, being in all 250 or 300 miles from Saltville to Chattanooga, where the Tennessee river breaks across the Cumberland mountain ranges, emerging into the plain country near Huntsville, Alabama, 100 miles by land from Chattanooga.

The entire track referred to lies on the north side of the Holston and Tennessee rivers, and crossing that river west of Huntsville, reaches Memphis over a level region.

Between the Tennessee river (there running northward) and the Mississippi river, a ridge of an elevation of 200 feet occurs, which is the only important elevation on the entire distance of 500 to 550 miles along the line designated from Saltville to Memphis. The track described lies in continuous valley depressions along the base of sandstone mountains, from Saltville to Huntsville, which are generally poor and uninhabited and have never been examined or surveyed by any engineer.

I have traversed and examined the entire distance, and was surprised that the Knoxville and Chattanooga railroad, not yet completed, was not laid off on the north, instead of the south side of the Tennessee river.

The Georgia railroad is now finished to a point 34 miles south of its terminus at Chattanooga, and from the latter place to Nashville a railroad will soon be made, passing through a district rich in stone, coal and iron.

Passing southward from Chattanooga, 160 miles along Will's valley, between the continuation of the Cumberland mountain ranges a level track for a railroad almost in a direct line, may be found, reaching to Wetumpka, or some other point of the Atlantic railroad, soon to be connected with the Mississippi at Vicksburg.

But placing out of view the important railroads crossing at Chattanooga and the Hiwassee road, from Chattanooga to Knoxville, it is our business in this quarter, to promote a connecting railroad from Knoxville along the southern base of Clinch mountain, 150 miles to Saltville, and the plaster banks, and thence through Mount Airy, by the rich iron and lead mines of Wythe Co., to the mouth of Little river, whence the railroad to Kanawha must diverge. The steep descent of 1500 feet from Little river to the Kanawha Salines can doubtless be overcome, but the profits arising upon the southwestern extension makes the latter first in order of completion.

The state of Tennessee has long felt the importance of extending the Hiwassee and Knoxville road towards Virginia.

But in completing the link between the Tennessee extension from Knoxville to Kingsport, near the Virginia line, and the James river and Kanawha road at Little river, not above 190 miles is required, the cost of which would be less than half the sum necessary to

make the road to the Ohio river over a like distance.

If from Little river, each road can receive equal support from state patronage, all should unite in finishing the eastern portion to that point. The expenditure upon the western roads ought to begin at their terminus and on the joint road the improvement should begin at Little river.

No friend of the railroad scheme of improvements should relax exertions to finish, as soon as practicable, the Macadamized road now in progress, from Little river to the Tennessee line.

Its uses are essential in an agricultural district like this, and cost a trifle when compared with the benefits it would extend to the construction of the projected road.

I cannot hesitate in believing that should Virginia complete a railroad from Lynchburg to Little river, that a western line from Chattanooga will speedily join with it.

I am well satisfied a railroad may be constructed from Chattanooga to Saltville, at less expense for grading, than would attend any other line of road in the Union, over a like distance. Along one side, for two hundred miles, coal lies within a mile of the track, at many points, and iron ore in immense amount near the line on the other side.

Exhaustless mines of lead and of native rock salt and gypsum, with many varieties of marble, would supply tonnage for the road.

The chief profit would however be derived by making the line the great thoroughfare for travel between the south and west and the east.

I have not time to state the points referred to, with the care to which they are entitled.

Respectfully yours, A. McCALL.

The Rev. J. Early, from the select committee, to which was recommended the report made last evening, presented an amended report, in the shape of resolutions, as follows:

1st. Resolved, That the time has arrived, when the people of Virginia must make a united and vigorous effort, to develop the resources of the State, and avail themselves of their natural advantages, by the adoption of a system of internal improvements, adequate to the purpose, or they must be content to hold a subordinate rank among the States of the Union.

2d. Resolved, That the experience of the age, both in Europe and America, has conclusively established the adequacy of railways to subserve the great interests of commerce, agriculture and manufactures.

3d. Resolved, That, in the opinion of this convention, no improvement could be constructed in Virginia, which would tend more to promote the prosperity of all and every portion of the State, than the great thoroughfare between the east and the west, proposed in the act of incorporation of the Richmond and Ohio railroad company, and that such an improvement, supported as it would be by the trade and travel of the west, would build up the seaports of the State and the inland towns on the route, and give a development to the agricultural and mineral resources of the commonwealth, which can only be conceived by witnessing the effect of similar improvements in our sister States.

4th. Resolved, That the explorations and surveys of the country are sufficient to satisfy us, that a connection between the Atlantic coast and the valley of the Ohio, by means of the Richmond and Ohio railroad, may be accomplished with as much facility, and at as little expense, as by any other work, which has been constructed or contemplated, and that there is no reason to doubt, that the proposed railway, if

promptly commenced, and prosecuted with energy, may be completed in five years.

5th. Resolved, That a petition should be presented to the legislature, asking an amendment to the charter of the Richmond and Ohio railroad, to enable that company to construct a lateral road to the south west of the main stem of the road, to such extent, within the limits of Virginia, as may be deemed necessary to accommodate that country.

6th. Resolved, That the construction of the proposed railroad would not only enable Virginia to resume her former position among the States of the Union; awaken the energies of her citizens; secure their prosperity and promote their progress; but it would also be a matter of great national interest and importance.

7th. Resolved, That it is expedient to address a memorial to the legislature, for the purpose of obtaining the aid of the State in the construction of the proposed railway, and that a committee of .... be appointed for the purpose of preparing and presenting such a memorial.

8th. Resolved, That it be recommended to the friends of the Richmond and Ohio railroad, to call meetings of the people in their respective towns and counties for the purpose of aiding and advocating the work and procuring subscribers.

9th. Resolved, That .... be, and are hereby, requested to go to Richmond at such time as may be appointed, during the next session of the legislature, to lay before that body all necessary information touching the road and generally to promote the objects of this convention.

10th. Resolved, That a committee of .... be appointed to prepare an address to the people of Virginia, with a view of promoting the interests of this improvement.

11th. Resolved, That the members of this convention will collect in their respective neighborhoods and forward to the chairman such subscriptions, as the friends of the work may be disposed to make, to defray the expenses of said committee, and such other charges as may be deemed necessary in promoting the objects for which it has been constituted.

Mr. Buckingham moved to amend the 5th resolution, by inserting, after the words "*main stem of the road*," the following words: "from some point on New river, in the county of Montgomery, to such extent within the limits of Virginia, as may be deemed necessary to accommodate that country."

This motion gave rise to a long and interesting discussion, in which Messrs. Buckingham, Lyons, Clarke and Early participated, but was rejected by a decisive vote.

The report of the committee was then adopted.

The president announced the following committees, called by the 7th, 9th and 10th resolutions viz:

To Prepare Memorial to the Legislature.—Rev. J. Early, F. B. Deane, Jr., Wm. H. McFarland, Jas. Garland, Richard G. Morris and C. Dimmock, and the convention added the name of the president.

To Attend the Legislature.—Thos. H. Ellis, Joseph R. Anderson, Peter Clarke, W. Blackwell, Benjamin R. Floyd, John Early, Geo. W. Summers, A. A. Chapman, Albert G. Pendleton, Wm. C. Irvine, and Col. M. Langhorne.

To Prepare an Address.—Robert J. Davis, J. K. Irving, Richard K. Cralle, Wm. M. Blackford, J. B. Radford, David Barnett, P. S. Buckingham, and the convention added the name of the president.

The following resolution was then offered and adopted.

Resolved, That one thousand copies of the proceedings of this convention, together with the correspondence elicited by the committee of arrangements, and such statistics and other information as may have been collected be published in pamphlet form, for general circulation; the cost of which shall be paid out of the funds to be collected, as provided by the resolution of the committee already adopted.

On motion of R. K. Cralle,

Resolved, That the thanks of this convention be presented to the president and secretaries, for the dignity, impartiality and ability, with which they have discharged the duties of their respective offices.

The convention then, after a short valedictory address from the president, adjourned.

JAMES LYONS, President.

WM. M. BLACKFORD, } Secretaries,  
ROBERT H. GLASS. }



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.  
Hamilton, July 30, 1847. 2m32

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**FOR SALE—300 TONS (10 MILES) FLAT** Bar Rail, in parcels or wholesale—section 2 1/2 inches wide by 1/2 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

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July 31—3m **ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

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Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 232 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

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These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

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Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

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Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844. ja45

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Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Ewing, Philadelphia; Wm. E. Collin & Co., Boston. ja45

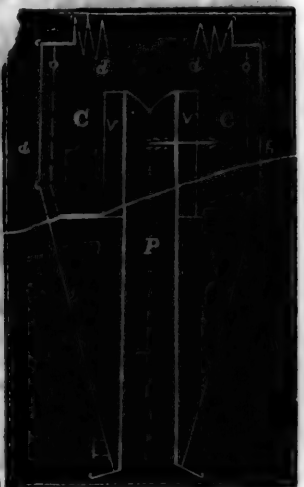
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**Railroad Work.** Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

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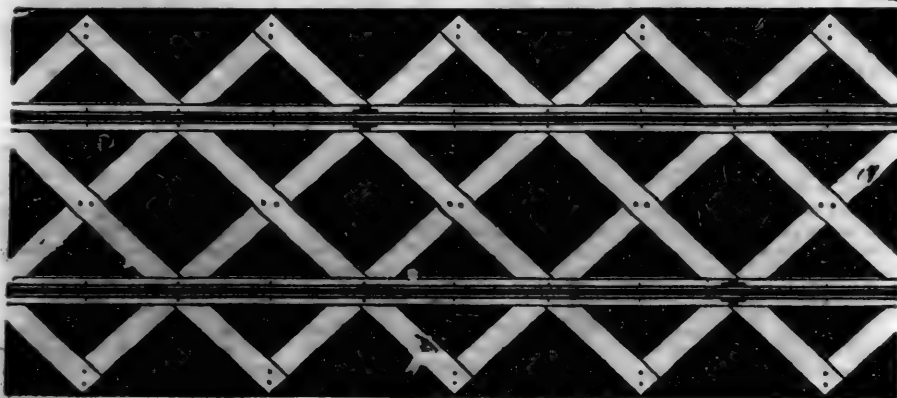


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Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 33f

## LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1725

28 Platt street, New York.

## RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Dec. 25, 17\*

Pres't. Mt. Savage Iron Works,

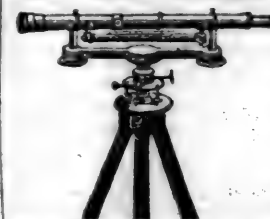
Maryland.

ENGINEERS' AND SURVEYERS'  
**INSTRUMENTS MADE BY**  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1710 near Third,

below Walnut,  
Philadelphia.



THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

West Troy, May 12, 1847.

ANDREW MENEELY.

17\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
121f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.  
1748 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17,



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4½	13 5	10	24 -	50	15-16		20
13	3½	9 3	8½	16 -	27	11-16		13½
14	3½	6 11	7½	12 8	17	9-16		10½
15	2½	5 2	6½	9 4	13½	1-2		7½
16	2½	4 3	6	8 8	10½	7-16		7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

Ja25

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power

**THE SUBSCRIBERS, AGENTS FOR**

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**

59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
a45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10½

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.  
1y10 New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

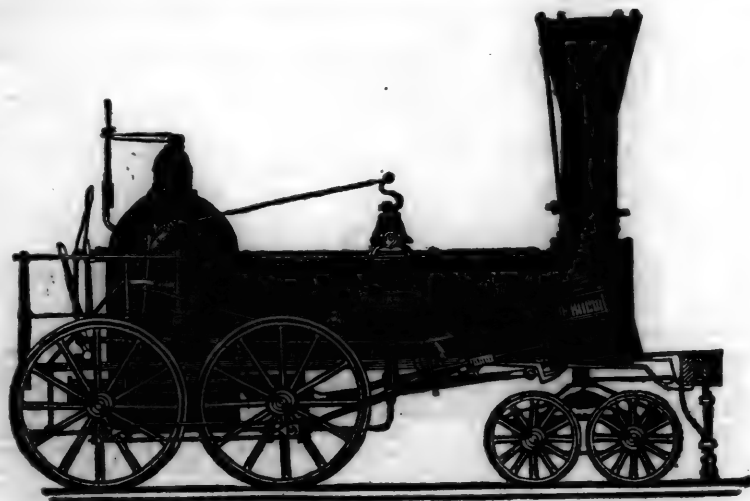
It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa. ja45

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " (× 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Wore. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear- ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28f

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long. 25 " 2½ x ½ " Flange Iron Rails. 75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK &amp; CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York. 26f

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER &amp; MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28f

J. BALL &amp; CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m.; to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**





**LITTLE MIAMI RAILROAD.—OPEN**

TO SPRINGFIELD—Distance 84 miles—  
connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co.'s daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	.....\$1 00
" " " Xenia	.....1 50
" " " Springfield	.....2 00
" " " Columbus	.....4 00
" " " Sandusky city	8 00

The Passenger trains run in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 1/2 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47th W. H. CLEMENT, *Sup't.*

**PATERSON RAILROAD**

Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9 1/4 o'clock a.m.
11 1/4 o'clock a.m.	12 1/4 o'clock p.m.
4 o'clock p.m.	5 1/4 o'clock p.m.
On Sunday.	
8 o'clock a.m.	9 1/4 o'clock a.m.
4 o'clock p.m.	5 1/4 o'clock p.m.

95th Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

MAIN STEM. The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7 1/4 and Cumorand at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5 1/2 P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5 1/2 P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 137th

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at	.....9 a.m. and 3 1/2 p.m.
Arrives at	.....9 a.m. and 6 1/2 p.m.
Leaves York at	.....5 a.m. and 3 p.m.
Arrives at	.....12 1/2 p.m. and 8 p.m.
Leaves York for Columbia at	1 1/2 p.m. and 8 a.m.
Leaves Columbia for York at	8 a.m. and 2 p.m.

**FARE.**

Fare to York	.....\$1 50
" " Wrightsville	.....2 00
" " Columbia	.....2 12 1/2

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Har-

risburg

Or via Lancaster by railroad

Through tickets to Harrisburg or Gettysburg

In connection with the afternoon train at 3 1/2 o'clock,

a horse car is run to Green Spring and Owing's

Mill, arriving at the Mills at

Returning, leaves Owing's Mills at

D. C. H. BORDLEY, *Sup't.*

31 1y Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lex-

ington daily, at 8 o'clock a.m. and 2 p.m. Dis-

tance, 25 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from

Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to

15th March) is 6 o'clock a.m. from Lexington, and

ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WEST-**

ern Railroads, Ga.—These Roads with the

Western and Atlantic Railroad

of the State of Georgia, form a

continuous line from Savannah to Oothcaloga, Ga.,

of 371 miles, viz:

Savannah to Macon—Central Railroad

Macon to Atlanta—Macon and Western

Atlanta to Oothcaloga—Western and Atlantic

Goods will be carried from Savannah to Atlanta

and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Cof-

fee, Liquor, Bagging, Rope,

Butter, Cheese, Tobacco,

Leather, Hides, Cotton

Yarns, Copper, Tin, Bar &

Sheet Iron, Hollow Ware &

Castings

Flour, Rice, Bacon in Casks

or boxes, Pork, Beef, Fish,

Lard, Tallow, Beeswax, Mill

Gearing, Pig Iron and Grind

Stones

On Measurement Goods—Box-

es of Hats, Bonnets and Fur-

niture, per cubic foot

Boxes and Bales of Dry Goods,

Saddlery, Glass, Paints,

Drugs and Confectionary,

per cubic foot

Crockery, per cubic foot

Molasses and Oil, per hhd.,

(smaller casks in proportion).

Ploughs, (large,) Cultivators,

Corn Shellers, and Straw

Cutters, each

Ploughs, (small,) and Wheel-

barrows

Salt, per Liverpool Sack

Passage—Savannah to Atlanta, \$10; Children,

under 12 years of age, half price,

Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, Aug. 15th, 1846.

**CENTRAL RAILROAD—FROM SAVAN-**

nah to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally

On measurement goods

On brls. wet (except molasses

and oil)

On brls. dry (except lime)

On iron in pigs or bars, cast-

ings for mills, and unboxed

machinery

On hhd. and pipes of liquor,

not over 420 gallons

On molasses and oil

Goods addressed to F. WINTER, Agent, forwarded

free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlan-

tic Railroads—and by stage lines and steamers connects

with the Montgomery and West Point, and the

Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily

Fare through from Charleston to Huntsville,

Decatur and Tuscumbia

The South Carolina Railroad Co. engage to receive

merchandise consigned to their order, and to

forward the same to any point on their road; and to

the different stations on the Georgia and Western

and Atlantic railroad; and to Montgomery, Ala., by

the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects

daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly

line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tuscumbia, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga

for Chattanooga, Jasper, Murfreesborough, Knox-

ville and Nashville, Tennessee.

This is the most expeditious route from the east to

any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

NEW YORK AND PHILADELPHIA RAIL-

road line—direct. Via Newark, New Brun-

wick, Princeton, Trenton,

and Bristol. (Through in

six hours.) Leaving New York daily from the foot

of Liberty street.

Morning line

Mail pilot line

The lines proceed direct to Bristol without change

of cars, and thence by the new steamer, "John Ste-

vens," to Philadelphia.

FARE BETWEEN NEW YORK & PHILA.

First class cars

Second class cars

Passengers will procure their Tickets at the office

foot of Liberty st., where a commodious steamboat

will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each

passenger in this line, and passengers are expressly

prohibited from taking anything as baggage but

their wearing apparel, which will be at the risk of

the owner.

Philadelphia Baggage-crates are conveyed from

city to city, without being opened by the way. Each

train is provided with a car, in which are apart-

ments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the

foot of Walnut st. at 9 a.m., and 4 1/2 p.m.

The lines for Baltimore leave Philadelphia daily,

except Sundays, at 8 a.m., 3 1/2 and 10 p.m., and Sun-

days only at 10 p.m.—being a continuation of the

line from New York.



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 13 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Pares.	Miles.	No. 1.	No. 2
Between Phila. and Pottsville, 92		\$3 50 and	\$3 00
" " Reading, 58		2 25 and	1 90
" " Pottsville " 34		1 40 and	1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 81f

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—39 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 75
Molasses, per hoghead. 8 50	13 50	
" barrel....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack..	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Sup't. of Transportation. 441y

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Mazon and Decatur and intermediate points.	0 22½	0 32½	1 54	1 05	0 81	0 86
Between Mazon and Knoxville & intermediate points.	0 22½	1 54	1 10	0 76	0 81	0 86
Between Mazon and Chattanooga.					0 61	0 81
Between Augusta and Decatur and intermediate points.	\$0 24	1 70	1 15	0 85	0 90	
Between Augusta and Knoxville & intermediate points.	\$0 24	1 70	1 20	0 80	0 90	
Between Augusta and Chattanooga.					0 65	
Between Charleston or Savannah and Decatur and intermediate points.	\$0 32	30 32	2 20	1 05	1 10	
Between Charleston or Savannah and Knoxville & intermediate points.	\$0 32	30 32	2 20	1 40	1 35	
Between Charleston or Savannah and Chattanooga.					1 00	
					\$0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Seythes, Smiths' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs.....  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheeser, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.....  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.....  
Per 100 lbs. Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

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HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

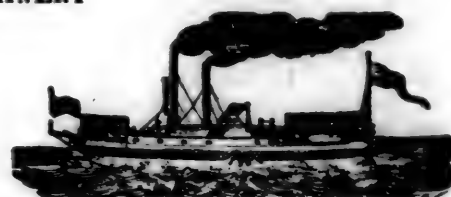
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
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One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



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SECOND QUARTO SERIES, VOL. III., No. 41.

SATURDAY, OCTOBER 9, 1847.

[WHOLE No. 500, VOL. XX

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, October 9, 1847.

**TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.**—Proposals will be received at this office, until the 14th of October, for the Grading and Masonry of 14½ miles of this road, extending from Portland to North Yarmouth.

The line of road and the plans and profiles can be seen at this office, where any information in relation to the work can be obtained.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to complete the work.

GEORGE S. GREENE,  
Engineer K. & P. R. R.

Engineer's Office, K. & P. R. R.,  
Brunswick, October 2, 1847.

1141

## The Iron Trade.

The London Mining Journal, of 28th August, quotes rails at £8 10 to £9, average—and Scotch pig at 67 to 68s., cash—with few transactions. Estimated there is 100,000 tons on hand.

Welsh and Staffordshire continue in good demand—and prices firm.

The pressure in the money market has, to a certain extent, interfered with the progress of the railway system, which, with the increase in the manufacture of railway iron in this country, has caused a decline in the price of the English article.

## Hudson River Railroad.

The following letter from Mr. Jervis, in reply to one asking information in relation to this important work under his charge, will be read with pleasure by those who have watched the progress of the enterprise. Many doubted the intention, and others the ability, of those who first moved in the matter, to carry it successfully through—and a larger number still doubt the ability of even the best railroad ever made, or to be made, to compete successfully with such steamboats, on such a river as the Hudson. We must admit that we were, for a long time, among those not sanguine of the early construction of the road—but never doubted the ability of the parties, nor of its eminent success, if constructed in a proper manner, which we are now quite convinced will be the case.

The opinions of Mr. Jervis, in relation to low fares, are entitled to consideration, as they have been adopted after long and careful investigation; and in opposition, we believe, to contrary opinions previously entertained. That they will be sustained by the result we do not entertain a doubt; and we believe, with him, that the Hudson river railroad will do much—if not "more than any other"—for the railroad enterprise. It—if any railroad in the country—will test the question, whether a good railroad can compete with the best steamboats, and steamboat navigation in the world, in carrying passengers; as the Reading railroad will test the question as to the ability of railroads to carry heavy freights, in competition with one of the best canals in the country.

OFFICE HUDSON RIVER RAILROAD, }  
New York, 13th Sept., 1847. }

DEAR SIR,—Your letter of 11th instant came to hand this morning.

With the exception of two or three small sections we have this road under contract, from the city to Break Neck Hill, a distance of 55 miles, which carries the line to the Northern verge of the Highlands. Many of the contractors have commenced operations, and we shall soon have an active and vigorous progress of this part of the work—a work that is to do more for railroad enterprise than any yet undertaken in this country. We are to compete with a first rate steamboat navigation, which it is obvious we could not succeed against if we made an ordinary road; but with the easy grades, and the road we design to make, I have no fears of entire success; that is, so far as to make a diversion sufficient to sustain the road. We shall move

smooth and easy, at 30 to 40 miles per hour, and at the low fare gauge; it will be wonderful if we do not have passengers notwithstanding all the inducements steamboats can offer.

We carry a solid embankment, protected by a heavy river wall, where the line runs below high water mark, in the river, making bridges no further than is necessary to freely pass the water of streams, and allow free circulation of tide in the bays. Our total length of bridging, on the line now under contract, is less than 5000 feet.

Our line has been carefully located, and quantities computed from actual measurement; and by the contract it appears we shall get the work done within the estimate.

After much examination and reflection on this subject, I am fully persuaded, that on all important thoroughfares, through populous districts, the low fare system can be successfully sustained, on well made, and well conducted railroads, and afford good profits on the investments. We intend to demonstrate this on the Hudson River Road, and by doing so we shall confer a benefit on the public.

Respectfully, Your Obedient Servant,  
JOHN B. JERVIS.

## Telegraphs in England.

"The pipes," says the Chronicle, "opening the communication of the electric telegraph between Lothbury and the south of the metropolis were laid down on the 4th inst.

"The company, it is said, will open direct lines of communication to fifty of the principal towns within three months."

## Illinois and Michigan Canal.

This great work is approaching to completion.—The Chicago Journal says: "A gentleman connected with the work upon the Kankakee feeder assures us that it will be completed by the 15th of November. It was feared this portion of the work would be the last to be finished, but it is now as much advanced as any portion of the heavy work upon the line. About 300 feet of masonry per day will soon complete it, which is the rate at which it progresses. The balance of the machinery for pumping water upon the summit level, arrived yesterday from Erie in the Susquehannah. It is manufactured by Col. W. J. Totten, of Pittsburg, who superintends putting it in place here. The machinery is capable of elevating 10,000 cubic feet of water per minute, and will be ready for use in about 60 days. A drive to



Canal port a few days since—the point where the canal intersects the river—convinced us that the works in progress there, were much nearer completion than we had anticipated."

#### Schuylkill Coal Trade.

The following reports show that 1,218,150 tons of coal have been sent from the Schuylkill region this year—which is nearly equal to the entire amount of last year, with twelve weeks remaining yet for operations—in which they will probably get down about 300,000—making in all 1,550,000 tons for the year—showing an increase of about 25 per cent. on the amount from this region last year—and producing a return to those who have been engaged in getting it to market, of at least \$6,000,000!! while the coal from the other regions, and the iron, of Pennsylvania will produce at least as much more—or \$12,000,000 for her minerals, in addition to the products of the soil, which are unsurpassed by any State in the Union. With such resources, and the completion of her public works, Pennsylvania must become one of the most wealthy States in the Union.

**PHILADELPHIA AND READING RAILROAD**—Amount of coal transported during the week ending Thursday, October 7, 1847.

	Tons. cwt.
From Port Carbon.....	11,102 16
" Pottsville.....	5,554 04
" Schuylkill Haven.....	15,230 00
" Port Clinton.....	2,045 03

Total for week..... 34,932 02  
Previously this year..... 1,014,132 01

Total..... 1,049,064 03

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

**SCHUYLKILL NAVIGATION**.—Week ending October 7, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	3,603 13
Schuylkill Haven.....	1,163 10
Port Clinton.....	00 00

This week..... 4,767 03  
Previously..... 164,318 19

Total..... 169,086 03

#### Connection of the St. Lawrence with Lake Champlain.

We learn from the Montreal Herald that the project for a canal from Caughnawaga to St. Johns has been received with so much favor by the Provincial government, that Mr. Barrett, the engineer connected with the board of works, has been directed to make a preliminary survey. The result of this examination of the ground is most favorable. It appears that the distance between the St. Lawrence navigation and that of Lake Champlain does not exceed 20 miles, and that it would be impossible to find any piece of land which offers so many facilities for such an undertaking. Its utility admits of no doubt; for it is manifest that this would secure to the St. Lawrence the whole trade of the west with New York. We are informed that plans and estimates for this work are now in preparation; and that should the government decline to take the subject up, an immediate attempt will be made to secure the necessary funds through the capitalists of the State of New York.

#### Magnetic Telegraph.

The magnetic telegraph from Buffalo to Milwaukee is proceeding rapidly to completion. The contractor, Mr. Cornell, has just made a contract for the wire. It is the best quality English No. 9, and weighs 350 pounds to the mile. We saw a piece of it twisted into various shapes without a fracture.—Mr. Cornell is also building the Troy and Montreal

line, via Bennington, Rutland, Vergennes, St. Albans and St. Johns, and will have it completed in sixty days. This line will save the fluid much labor, as it now must go round by the way of Buffalo.

#### Fall River Railroad.

The business of this road is increasing beyond the most sanguine expectations of its friends. The following are the receipts for three months, ending August 31st:

June.....	\$11,000
July.....	15,000
August.....	16,599
	\$42,599

These earnings are on a capital of one million only, and the road is free from debt.

#### Crampton's Narrow Gauge Engine, With Large Driving Wheels and Low Boiler.

The Railway Chronicle, of September 11th, gives three views—a side, front and rear—of this remarkable engine, the "Namur," of which we have spoken more than once. By referring to the Journal of 22d May last, our readers will find a plan and specification of one of Crampton's engines with high drivers, and low boiler, but in that one the driving wheels are in the centre; in this, they are behind—the axle of the drivers being behind the boiler.

"This engine," says the Chronicle, "has been said by high authorities, on the London and North Western, to present the complete solution of the question of speed, as between the narrow and broad gauges, being run steadily smoothly, and safely, 75 miles an hour on that line." If this be so, we shall hear more of them, as it is said that "two of them have already been built, and several more of them ordered."

#### Telegraph.

"An electric telegraph is in active preparation along the railway from Vienna to Prague. When completed, every locomotive engine is to be furnished with a small electric apparatus, by the aid of which and of a wire it can be put into communication with the telegraph, and thus announce to every station the events necessary to be known."

This is an excellent idea. It is in accordance with our views in relation to the erection of telegraph lines along the lines of railroads, as they can be more readily kept in repair and guarded, and can be more useful to community.

#### Influences of Railways.

The following article, under the head of "Promotion of Internal Relations," will apply as well to this country as to Europe. They will serve to make us familiar with important regions of country, of which we should know very little without them.—Light and intelligence will, by them, be carried into many a dark corner.

The Berlin correspondent of the Morning Post says: "The international relations grow from day to day more close and lively by means of the railways. Never before have we seen so many inhabitants of the capital of Austria among us as now.—A few days ago we read in one of our newspapers that all the managers of the whole chain of railways between Vienna and Hamburg had been invited to favor with their presence the opening [on the 1st of September] of the Hungarian central line from Pesth to Szolnock. Ten years back the number of the people of Berlin or Hamburg who had visited the interior of Hungary, was exceedingly small. Also in many other respects do the railways act as connecting links between the Austrian and North German elements. The tariff centner, or cwt., of 100 lbs., has thus now also been adopted as a general mea-

sure along the Ferdinand north line, and will probably assume the same character also on the other Austrian railways. The weights and measures will no doubt be followed by the coins."

#### Railway Traffic.

From official returns, it appears that the amount of traffic for the week ending Sept. 18th, on upwards of 3,132 miles of railway, was £210,147, thus accounted for: £117,846 for the conveyance of passengers only, £46,358 for the carriage of goods, and a remainder of £45,943 for passengers and goods together, not respectively apportioned; being an increase of £35,860 over the corresponding week of last year, when the mileage was about 2,925. This increase is not in proportion to the extension of the system.

#### Erie Canal Enlargement Resumed.

Our readers will rejoice to learn, says the Niagara Courier of 15th ult., that the arrangements preparatory to commencing the second tier of enlarged locks at this place, are now complete, and that on Monday last the laying of stone commenced. William Buell, Jr., the contractor, has made arrangements for the prosecution of the work in the most vigorous manner, and the high praise which has been awarded to him, for his intelligent and efficient management, upon late and important works on the Welland canal, affords a sure guarantee that this much needed work will be completed at the earliest possible day.

#### Railway Gossip.

The Railway Chronicle says that Mr. Crampton's new locomotive, the "London," which had been recently laid up for alterations, is again at work, effecting nearly a mile a minute with heavy trains; and that Lady Davenport is considered a *rara avis* among land owners. It is said that her ladyship is willing to forego for five years the payment for the land required by the Manchester and North Staffordshire.

The York and North Midland railway has, within twelve years from its formation, increased from 23 to 310 miles in length.

Messrs. Newall, of Gateshead, have made an iron rope for the Edinburg and Glasgow of the length of 4,660 yards. It weighs 20 tons 5 cwt., and is worth £1,330. A hemp rope would have been dearer and heavier.

It is said that the employees on working railways form already a considerable army. A return just issued shows that there are 47,218 officers and men employed on seventy-four railways in England and Ireland opened for traffic, the gross length of which is 3,305 miles, having 1,040 stations. There can be no doubt that the existence of a troupe of men so orderly and well trained as are railway officers, is a great political advantage.

The Chronicle says that the average fare paid by each traveller on railways during the year ending June, 1846, appears to have been two shillings and twopence. Such is the result shown by a parliamentary return, exhibiting the number of travellers on 63 railways in the United Kingdom during that period, and the amount of receipts from each class. The number of passengers who travelled by first class was 6,160,354; by second class, 16,931,065; by third class, 14,559,515; by parliamentary class, 3,946,923; by mixed, 2,193,126—total, 43,790,963. The amount of receipts from passengers was: first class, £1,661,897 19s. 10d.; second class, £1,907,946 19s. 11d.; third class, £738,474 4s. 11d.; parliamentary class, £293,732 7s.; mixed, £93,164—£4,795,215 11s. 8d. The amount received for

goods, cattle, etc., was £3,741,200 16s. 6d. Grand total, £7,466,416 8s. 0d. The inference from these data is, that the average distance travelled by each person must have been somewhere between 20 and 13 miles, and cannot have been so much as 26 miles—a result which shows how considerable the short local traffic must be.

#### Menai Straits—Tubular Bridge.

We published in the Journal of September 4th, a letter of General Pasley, addressed to the London Times, in which he descants somewhat severely upon the various "projects" proposed by Mr. Robert Stephenson, for passing the Chester and Hollyhead railway over the Menai Straits. Since the publication of General Pasley's letter, there has been a meeting of the Chester and Hollyhead railway company, at which Mr. Stephenson replied to the General in the following terms. We quote the *Railway Record's* report:

"General Pasley makes only a statement, or rather gives a detail of conversations which took place between us relative to the principle of the use of iron tube bridges. General Pasley states, that at first he approved of the principle adopted by me, and there is not in his letter one paragraph to condemn that principle—nay, he distinctly repeats that he approves of the principle. What he complains of is the mode of erecting the tube. Now, gentlemen, there are only two or three persons who know the facts connected with the mode proposed, and General Pasley cannot possibly be in possession of any information which can at all justify his prediction. The original plan was to use chains to raise the tube to a level with the platform of the railway, which chains could be removed when the tube was fixed. Afterwards, we altered the mode of raising the tube; and it is only to this mode about which General Pasley cannot know anything—for, as I have said, it has been confided only to two or three persons—that objection is taken. I believe any apprehensions that may be entertained are of a very vague character, and that it is mainly the novelty of the plan which gives rise to such apprehensions. I believe the objections have nothing in them; the plan is only an application on a gigantic scale of an old principle.

"I beg to say, gentlemen, that they have created no apprehension whatever in my mind; they have not altered my convictions in the slightest degree: and though, as in all great works, difficulties doubtless will arise in the course of their execution, these difficulties, I am satisfied, will only be such as will suggest the remedy as they occur. I believe nothing will occur which we shall not be able to correct. I shall myself be on the spot; and I repeat, that though I never knew any great work of any kind in which difficulties have not arisen, I entertain no doubt that in this case they will be readily surmounted. I beg, therefore, that the proprietors will dismiss all apprehensions on this point from their minds. The scheme involved long and experimental investigations, exceeding anything that had ever taken place before; but I felt that a large expense was fully justified to test and settle the details of the bridge. I believe we have so settled the

matter; and I have reason to know that the most eminent engineers and mathematicians approve of the principle.

Mr. HENMAN had understood General Pasley's objection to be, that Mr. Stephenson now intended to abandon the suspension principle which he had originally fixed upon. Now, he would be glad to know if Mr. Stephenson was of opinion that the tube, being of so large a span as 450 feet, would be able to bear the trains, and withstand the vibration, without support from chains at intermediate points.

Mr. STEPHENSON.—I wish it to be distinctly understood that I never designed the chains should form an essential part of the permanent structure; they were originally proposed, not for supporting the tube, but for raising it. As we proceeded, I found that, by increasing the weight and size—or rather, I should say, the weight only, for the size has never been altered—we could dispense with the chains altogether. I believe that it may be looked upon as fully settled, that, as respects the strength of the bridge, the chains would rather be a deterioration than otherwise. As regards vibration, there are certainly various opinions; but, for my own part, I think that no vibration at all will be felt. My reason is, the relative ratio of the weights of the tube and the trains. Take, for instance, a train of even 100 tons, then, as the tube is to be 1,200 tons weight, I ask whether, with such relative weights, the tube is likely to be thrown into vibration? I say it is impossible. If the ratio of weights were reversed,—if, for instance, the train should be 1,200, and the tube 100, such vibration would, undoubtedly, arise. I believe that the tube will be as firm as a rock—that it will suffer no vibration at all; at least, not more than everything does over which a train passes.

We quote the following description of this stupendous work, in its present state of progress, from the letter of a correspondent of the *Manchester Examiner*:

"If we suppose ourselves stationed in a boat in the middle of the Menai Straits, a few hundred yards distant from the new bridge on the south side, and suppose it finished, we shall see a wonder of the world of this kind. First, there is the middle pier rising out of the water, founded on the Britannia rock, after which the bridge is named. This rock can be seen at low water. The breadth of this pier is 62 feet by 53 feet and a quarter of an inch. The blocks of stone are 7 and 8 feet long by 3 and 4 feet in breadth and deepness, and they rise, stone upon stone, until the pier is 230 feet high. At the distance of 460 feet on each side of this centre pier there rise, near the water's edge, two other piers of the same gigantic breadth and height; while, on each side of these two piers, at the distance of 250 feet, there rise two walls. Continuing outwards, the wall on our right hand, on the Carnarvon shore, does not extend its ponderous bulk far back, for the land is high and bold, and the railway comes along its elevated brow, and at once lays hold of the bridge. But on our left hand, which is the Anglesea shore, the wall is the forehead and end of a mighty em-

bankment, on which the railway is raised to the level of the bridge. There, then, are the four spaces before us, across which, in the iron tubes, the railway is laid, namely, two spaces on each side of the centre pier, of 400 feet each (let the reader measure 460 feet on a street or on a road, and he will wonder at the vastness of this structure;) and two more spaces of 250 feet respectively, at each end. The tubes are eight in number, each of them 30 feet on the exterior side, and 27 feet high in the interior. Each is 14 feet wide, and they are laid in couples parallel to each other. In the whole, with the breadth of the piers and the landward buildings, the length of the bridge is one-third of a mile. In height the three piers are, as already said, 230 feet. Measuring from low water mark to the bottom of the tubes, the height is 130 feet, the tubes being thirty feet on the side, and the pier 70 feet above their upper surface. As ornaments to the two walls which rise upon each shore, are four lions, two at each end of the bridge. The lions contain about 8,000 cubic feet of stone. They lie couched, and yet the height of each is 12 feet; the greatest breadth across the body is nine feet, the length 25 feet, the breadth of each paw two feet four inches. The tubes are made of plates of iron of various thicknesses, rivetted together. The iron increases in thickness as we proceed towards the centre. The roofs of the tubes are formed of cells, and also the floors. These cells are formed of iron plates set on edge, the cells of the roof being within a fraction of one foot nine inches square, and those of the floor being one foot nine inches wide, and two feet three inches deep. The rails on which the trains run, are laid on the cells of the floor. The flat bottom, the two upright sides, and the flat roof of each tube are formed of plates, the thinnest of which is a quarter of an inch, and the thickest three quarters of an inch. The weight of each of the four long tubes will be about 1,300 tons; the weight of each of the four short ones, about 600 tons. In the whole, there will be at least 7,600 tons of iron used. The masonry was contracted for by B. J. Nowell & Co., at 130,000l.; but, from alterations in the plans, it will cost 200,000l. They expect to finish the masonry by August, 1848. It will contain 1,500,000 cubic feet of stone."

#### Railway Service under Existing Circumstances.

We find the following remarks on this subject in the London Railway Chronicle, of 18th September; and, as they relate to an important matter, deserving of constant and watchful attention in this country, as well as elsewhere, we give them a place in the Journal, and shall endeavor to do the same by those which may follow from the able editor of that excellent paper on the subject.

It is well known that we are, and have been, the advocate of "low fares"—but only such low fares as would, by inducing an increase of business, increase the receipts, and thus be the means of enhancing the value of railway investments; and here is the difficult question to settle, viz: what are those rates? The answer can only be given, as we contend, after a series of experiments, instituted in accordance with the circumstances under which they are made. A rate of fare and charge which would



ensure success on the roads in Massachusetts, would not accomplish the same object in Virginia—so also what would give rich returns between populous cities will not pay expenses through sparsely populated regions, and between small towns. It is a matter, we believe, which requires the most thorough investigation, and judicious experiments by the engineers and directors, who ought to be gentlemen of intelligence, who are willing to yield pre-conceived opinions—and perhaps prejudice—upon good authority, or practical experience.

The editor says, "From the half-yearly accounts of all the great companies—with the exception of the Midland and Yorkshire system of lines under Mr. Hudson's management—one general deduction, it appears, may be pretty fairly drawn, viz: that the scale of passenger fares has already been lowered to the extreme point at which the work can be profitably done, while the other working arrangements subsist as at present. This observation may suggest the expediency of viewing the probable course of future affairs attentively, and reviewing more than one class of practical details, for the purpose of seeing whether something may not be attempted to secure the valuable interests of the owners against any injudicious effect from what has already been imposed, or may hereafter be laid upon them. From this inquiry it will be proper to exclude all reference to temporary circumstances, or to any cases of an exceptional kind. The proportion of net receipt to expense, for instance, has been effected on many lines by causes independent of the mere rates of charge: there have been serious casual checks to the ordinary flow of traffic—there may have been expenses that good management might have avoided, and may hereafter prevent. These are altogether foreign to the discussions we speak of. Nor will the conditions of a railway like the Great Western, with its peculiar system, both of fares and of structure; supply any materials for the general question, which is concerned with the universal tendencies that have affected or are likely to affect the prevailing national system.

"Setting all casual matter then aside, these points, we think, may be distinguished on the ground already cleared;—1st. That the current business on the main lines, at existing rates, is greatly reduced in its profitable income. 2ndly. That the business on the additional branches, when they are completed, is not likely to return a rate of profit equal to what the principal trunks may still earn;—while the proportion of the accessory to the chief lines is increasing, so that the supplement may soon become greater, in mere lineal extent, than the original body. 3dly. That in the article of charges no alteration of any consequence, in favor of higher rates, could be prudently attempted now; and that the efforts of the public, seconded by the State, will be continually applied to bring them still lower hereafter. These are positions to the bearing of which it behooves all concerned in railway management to be attentive; and they lead, we think, to conclusions of a practical kind, that deserve consideration for the sake of all owners of railway property.

"We propose, therefore, to examine next week what those conclusions are; and to

what extent it may be proper and convenient to act upon them in the ordering and working of the current traffic on the railways of this kingdom under existing circumstances."

#### SARDINIAN RAILWAYS.

It would seem that the railway fever has reached every government in Europe, and we shall expect soon to hear that the *Sultan* has given orders for the construction of railways within his dominions.

The following article, which we find in the *Chronicle*, speaks of the works projected in Sardinia—and of tunnelling the mountains, as though it were a mere trifle. It says:

"The Sardinian railways will be composed of three great trunk or principal lines, diverging from the central point, Alexandria. The following account is furnished by the *Morning Herald*. The first will pass by way of Genoa the Superb, across the Apennines;—the second by way of Turin, to Asli, world-renowned for its famous white wine—the proper accompaniment to the small, sweet, plump oyster of Genoa. The third will pass by Valenza and Novarra to lake Maggiore. On the first named line, workmen have been employed on all the points for a considerable time, and the tunnel *dei Gioghi*, which is to pierce through the Apennines for a length of 3,000 metres, and which it is said will cost 8,000,000, is going on so vigorously that it is reported it will be finished in 1850. During the severe winter which we have just passed, from 20,000 to 25,000 workmen were employed on this line, for the space of four or five months. On the third line—namely, that from Alexandria to lake Maggiore, workshops and smitheries are open in the neighborhood of Novarra; and the magnificent viaduct of Valenza, over the Po, which is to cost 4,000,000, has been already commenced. Complete surveys have also been made for the Turin line to France, by way of Savoy. The position of the tunnel through Mont Cenis is already determined on. On the Italian side it will commence above Exilles, a few leagues from Suza, and open out on the other side, on the slope opposite the village of Modene, in that sweet valley near St. Jean de Maurienne. Let the reader reflect with pride, that a tunnel of 10,000 metres, under the Mont Cenis—a work, the mention of which fifteen years ago, would be received with a smile of incredulity—is destined to be accomplished in the era in which we live.—Yet are not our boastings very vain and very empty? for after all, as the wise man says, there is nothing new under the sun. In the Roman States a tunnel or subterranean passage for an aqueduct existed, as is truly stated by a writer in the *Revue des Deux Mondes*, from one side of the Apennines to the other more than twelve centuries ago; and why should not modern science be enabled to achieve for locomotive engines and their passengers that right divine of way which the old Romans sought and found for water?—The chief engineer of the Sardinian government has invented a machine for the purpose of perforating the mountain, and it is not to be supposed that the influx of water will present anything like the obstacles Mr. Brunel had to encounter in the Thames tunnel. The

easy and prosperous state of the finances of Sardinia will enable the State to accomplish with ease these gigantic and important works and several others of minor interest, to which it is not necessary more especially to refer. The cardinal and most pressing task of Piedmont is, however, the finishing of the great line of communication between Genoa and lake Maggiore, and to this her chiefest energies should continue to be directed. Before such a work the paltry toll gates, the petty and vexatious *octrois*, *peages*, *douanes*, and *doganieri* of Italy must fall; and probably before 1850, we shall see the day when an English gentleman shall cross the Alps and Apennines, and pass the Po and the lazy Brenta, described by Ariosto as

.... un fiume

Che verso il vicin mar cheto ai muove,  
without once unpacking his travelling bag."

#### RECIPROCAL RELATIONS OF RAILWAYS AND THE RAILWAY PRESS.

We often find, in the *Railway Chronicle*, views put forth exceedingly appropriate and just—and although designed for another country, we consider them equally appropriate here, and therefore give them to our readers that they may apply them if they are of our opinion.

There can be little doubt but that the system is indebted to the press, and therefore the press ought to be liberally sustained by the system.

"There are certain reciprocal relations between railways and the railway press which, as recent events prove, are not sufficiently understood or satisfactorily carried out. At the South Eastern meeting, Mr. Macgregor very properly acknowledged the great service which the railway press rendered in opposing and successfully defeating the attack on railways threatened by the Strutt bill. At the same meeting, it came out, in answer to a shareholder, that under the impression of saving a small sum, the usual practice of advertising the meetings in the railway press had not been followed on this occasion. The excuse given was that notices had been sent by post to all the proprietors. As a matter of mere convenience to shareholders, it is clear that an advertisement is far better than a posted letter. An advertisement stands as a record for all time. Besides it certainly is the duty of railways, in return for the support and good which they undoubtedly receive from the railway press, to make it the interest of the proprietors to support that press; and the habit of recording all matters of fact in the press would have a wholesome tendency in inducing shareholders to consult the press for information. But there is another view which may be fairly insisted on. The only legitimate return which railways can make to their advocates and supporters is by Advertising—and railways are bound to do this. In the time of the mania, railways for their own purposes advertised freely enough, but when economy becomes important, advertising is narrowed or neglected, though its importance is quite as great for all legitimate railway purposes. Our readers will have remarked that recently a small proportion only of the numerous half yearly meetings, or the resolutions passed at meetings, have been ad-

advertised in any of the railway papers. We contend that these advertisements are the right of the railway press, and that no plea of economy justifies the withholding them. If the railway press saved, as it did, railways from the Strutt bill, it savors a little of ungrateful neglect not to make the only return which railway companies have it in their power to make—namely by *Advertising*."

**SPEED, COMPETITION, THE FOUR RAIL SYSTEM, AND THE TRUE PRINCIPLES OF GOODS AND COAL TRAFFIC.**  
*Views of Mr. Stevenson, as given before the House of Commons.*

The following extracts from Mr. Stevenson's opinions, given before a committee of the House of Commons—are taken from the Railway Chronicle. They appear not to have been before published—and they will probably be interesting to many of our readers. We give them a place in the Journal.

**The Four-rail System, Economy.**—In consequence of our fixed establishment we shall be able to carry the additional traffic we obtain cheaper than any other company can do. At present, as you converge towards London, the trains become more numerous, and when any of them are not in time they give rise to great disorder; not because the railway is incapable of carrying them when they keep their time regularly—for the London and Birmingham are capable of accommodating three times the amount of their present traffic, provided absolute punctuality is insured. More towards London the value of punctuality begins to tell most, and we want more lines.—A loop line from Tring to Banbury (the Buckinghamshire, since passed) would accommodate local traffic, and could also be made subservient to heavy traffic moving at slow rates. Four lines of rails from London to Tring would receive and divide the great tide of traffic flowing towards the metropolis (at present flowing on two lines of rail only) and by enabling us to serve the public better attract more traffic to us.

**Competition.**—Looking at the past, we may expect for some time to come that the hostile companies will go on devouring each other, though I hold the opinion very strongly that permanent competition is impossible. The object of companies who are in competition in laying out lines is generally for the purpose of maintaining the ground, in order that when the time does arrive for adjusting their differences, they may not be trampled on by their neighbors. I have the strongest possible opinion that perpetual competition is impossible, and that after the country is occupied there will be an adjustment. The Gt. Western are great preachers of competition, yet it is within my own knowledge that treaties have been going on between them and the London and South Western, of which a territorial division has been the basis!

**Quick and Slow Traffic (London and North Western).**—At present we are obliged to force on our goods train to make room for our passenger trains. The cost of conveying goods is augmented in consequence of that speed.—The public will never get the full advantage of railways until they can separate the slow traffic more or less from the quick traffic.—Up to a certain extent the mixture does not

add to the expense of conveyance, but when the mixture becomes very great, or the income of the railway is derived as much from goods as from passengers, then, in order to convey goods more economically, it becomes desirable to convey them at a speed of, say, from 15 to 18 miles an hour, coals at a speed not exceeding 15 miles an hour, for it is impossible to convey them at 1d. or 3d. per ton per mile, if they are to be hurried along at 25 or 30 miles an hour; the cost and the wear and tear are too great, besides coal is damaged very much by velocity. The clogging of the London and Birmingham line referred to has arisen from the tolls being very much lowered. Many persons thought that the reduction of tolls would not increase our traffic. Now, I held a different opinion. I always thought that by reducing fares on railways, especially the charges on goods, they would become great instruments of conveyance for the heavy class of articles—and so it turned out. So that a great increase came upon us suddenly, without our having either wagons or engines adequate for the increase.

**Wear and Tear on Broad and Narrow Gauge.**—Q. Is there no difference of pressure on the same weight of engine at the same speed on the broad and narrow gauge? A. None; the crushing weight is precisely the same, or rather the crushing effect of the wide gauge is greater at the curves than on the narrow gauge. If there was any difference in the tendency of the heavy weights to crush the rails, it would tell against the wide gauge at curves, because the wheels are keyed on the axle, and they consequently move round with the same velocity, and when the engine is going round a sharp curve there is a greater distance to go round upon the outside, so the inside wheel has to slide a little back, and the outside wheel has to slide a little forward; and, inasmuch as the difference of gauge increases the amount of sliding, the heavy weights will crush the rails more in the one case than in the other, but in a perfectly straight line the crushing is equal. Q. Is the rail stronger on the broad or the narrow?—A. The rails are laid by Mr. Brunel on longitudinal timbers. He takes the strength of the timber as well as the iron.—In the usual mode of constructing the narrow gauge you do not use the longitudinal timber, but you lay heavier rails instead. You get the bearing strength entirely on the rails in the one case, and in the other case partly on the timber.

**Speed.**—We are now in possession of speed that no permanent way in existence, broad or narrow, will be able to stand long. The wear and tear of the rails has been, in my opinion, nearly as the square of the speed.—If it were perfect machinery in every respect, the wear and tear arising from concussions, ought to be exactly as the square of the speed, and I presume it ought to be directly as an engine weighing double the number of tons would cause double the amount of crushing. Indeed, I know that speed is the great trial of our present permanent roads. The proof is that we have been obliged to strengthen them about 16 or 18 pounds per yard, and

now there are some of about 90 pounds.—This increase of speed, the weight remaining the same, is a direct and large sacrifice of the profits of the company, which has operated, and is now operating with the London and Birmingham, and has led them to consider the propriety of duplicating the lines where they are compelled to run the heavy trains so quickly—that is between Tring and London. The interest of the capital they are about to expend to duplicate the line will be about £40,000 a year, the cost will be about £780,000.

**The Origin of the Oxford, Worcester and Wolverhampton.**—Is it a fact that this district applied to the London and Birmingham for accommodation and was refused, and was it in consequence of that refusal that the Oxford, Worcester and Wolverhampton line was originally projected? A. That, perhaps, is a rather harsh mode of representing it. But some of the London and Birmingham board entertained a notion at that time that railways were not really fitted for the conveyance of heavy goods, and they did not seek to obtain the traffic which the country demanded; and then again their accounts were kept in such a way as to make it appear that they lost money by the conveyance of goods. This was done by charging the goods with a portion of fixed expenses, which would have been necessary under any circumstances even for conveying passengers. Therefore when you debit the goods department with its proportion of the fixed establishment of the railway, then it does appear a loss to carry goods.—There may be one or two of the board now left who entertain their old opinions, but I know the management and system has undergone a complete revolution in that respect. I have always entertained the opinion that they ought to come down with their fares and carry heavy goods, and have urged it on the board. But I do not move out of the engineering department of the company. *I think that railways as instruments for the carriage of heavy goods, have not reached half their perfection or extent, and will not until we are permitted to separate the fast and slow trains.* If we convey heavy goods at 15 miles an hour, I believe it will reduce the cost of conveyance to considerably lower than one-half of what it is now; so that a large quantity of coal may come to London from the Midland districts. At present it costs us three farthings per ton per mile. In the north at Stockton and Darlington, where they convey the coal at nine miles an hour, every charge is included, and they carry it at one-half penny a ton per mile. The breakage of coal is so much increased by rapidity of movement, that it becomes impossible to move ordinary coal wagons when they are on any of the main lines without springs. The speed brakes the coal all to pieces. Experience has shown that the multiplication of railroads facilitates and creates much greater traffic than was anticipated. They reach on each other. That is one of the most remarkable features in the extension of the railroad system—the extraordinary reciprocation of traffic. If by the multiplication of railroads,



and the adoption of economical modes of transit, you can reduce the price of coal, the demand for the article in London would be most prodigious, and in the country it would be very large. There are many agricultural counties where they do not know what coal is now.

**Report on the Preliminary Surveys for the Milledgeville and Gordon Railroad.**  
Continued from page 631.

The estimates of cost are as follows:

**Section First.—Earth Work.**

Excavation ..... 29,343 c. y. at 16, \$4,694 88  
Embankment ..... 64,798 " " "

Excess of embankment, 35,455 " at 12, 4,254 60

**Masonry.**

Mortared ..... none.  
Dry ..... 89 cub. yds. at \$3, 267 00

**Bridging.**

Trestlework ..... 58,260 ft. b. m. at \$15, 873 90  
Piles ..... 150 at \$2, 300 00

\$10,390 38

**Section Second.—Earth Work.**

Excavation ..... 56,699 c. y.  
Embankment ..... 18,342 " at 16, \$2,934 72

Excess of excavation... 38,357 " at 12, 4,602 84

**Masonry.**

Mortared ..... none.  
Dry ..... 142 c. y. at \$3 426 00

**Bridging.—None.**

\$7,963 56

**Section Third.—Earth Work.**

Excavation ..... 30,758 c. y. at 16, \$4,921 28  
Embankment ..... 47,590 " " "

Excess of embankment, 16,832 " at 12, 2,019 84

**Masonry.**

Mortared ..... 27 c. y. at \$5, 135 00  
Dry ..... 99 " at \$3, 297 00

**Bridging.**

Trestlework ..... 10,100 ft. b. m. at \$15, 151 50  
Piles ..... 50 at \$2, 100 00

\$7,624 62

**Section Fourth.—Earth Work.**

Excavation ..... 18,291 c. y.  
Embankment ..... 17,893 c. y. at 16, \$2,862 88

Excess of excavation... 498 " at 12, 49 76

**Masonry.**

Mortared ..... 84 c. y. at \$5 420 00  
Dry ..... 99 " at \$3 297 00

**Bridging.**

Trestlework ..... 9,825 ft. at \$15 147 37  
Piles ..... 38 at \$2, 76 00

\$3,853 01

**Section Fifth.—Earth Work.**

Excavation ..... 42,669 c. y. at 16, \$6,827 40  
Embankment ..... 49,387 " " "

Excess of embankment, 6,718 " at 12, 806 16

**Masonry.**

Mortared ..... 86 c. y. at \$5, 430 00  
Dry ..... 64 " at \$3, 192 00

**Bridging.**

Trestlework ..... 9,825 ft. at \$15, 147 37  
Piles ..... 38 at \$2, 76 00

\$8,478 57

**Section Sixth.—Earth Work.**

Excavation ..... 39,633 c. y. at 16, \$6,341 28  
Embankment ..... 80,873 " " "

Excess of embankment, 41,240 " at 12, 4,948 80

**Masonry.**

Mortared ..... 370 c. y. at \$5, 1,850 00  
Dry ..... 114 " at \$3, 342 00

**Bridging.**

Lattice ..... 150 ft. run at \$15, 2,250 00

\$15,732 08

Cost of grading, masonry, and bridging, \$54,042 29

The quantity of excavation in cubic yards, is ..... 217,493

The quantity of embankment ..... 278,883

Total ..... 496,376

**ESTIMATE FOR ONE MILE OF SUPERSTRUCTURE.**

13,360 ft. b. m. in stringers, at \$7 per m. .... \$443 52

60 cross ties, at 20 cts. .... 120 00

36 tons of iron, at \$70 ..... 2,520 00

2,000 lbs. of splicing plates, at 4 cts. .... 80 00

1,487 lbs. spikes, at 5 cts. .... 74 35

Laying superstructure ..... 450 00

Filling track ..... 50 00

\$3,749 87

**COST OF ROAD.**

Grading, masonry, and bridging ..... \$54,042 29

Clearing and grubbing ..... 1,550 00

Right of way ..... 2,000 00

Grading & superstructure for 1 turn out, 1,000 00

One warehouse, cistern, pump, etc., at turn out ..... 600 00

One depot, with warehouse, passenger house, side tracks, sliding sections, turn tables, etc. .... 4,000 00

16 1/2 miles of superstructure, at \$3,749 87, 61,872 85

Engineering and contingencies ..... 12,606 50

\$138,671 57

**COST OF EQUIPMENT.**

2 locomotive engines ..... \$15,000 00

2 passenger cars ..... 3,200 00

10 freight cars ..... 6,000 00

24,200 00

Total cost of road and equipment ..... \$162,871 57

Adopting a rail of thirty-two tons to the mile, the weight of the Central railroad flat bar, the cost of road would then be ..... \$134,051 57

Equipment ..... 24,200 00

Total cost of road and equipment ..... \$158,251 57

**COST OF MAINTENANCE AND WORKING.**

The cost per annum of maintaining the road, as derived principally from the working of one of the principal railroads of this State, may, for the wood work, be estimated as equal to a renewal once in six years, or about seventeen per cent.; for the iron, as equal to a renewal once in twenty years, or five per cent., and the deterioration or washing of the earth work, at one per cent.—These items will be as follows:

17 per cent. on cost of wood work ..... \$4,095 78

5 per cent. on cost of iron ..... 2,145 00

1 " " " earth work ..... 442 56

\$6,683 34

The cost of working the road, will, of course, depend very much on the amount of business. The cost of working the road before alluded to, is found to be about thirty-seven cents per mile run, against thirty-one for maintenance. But in view of the probable amount of business upon the proposed work, it is believed to be safe to place the cost of working as equal only to the cost of the maintenance, or ..... \$6,683 34

To which add cost of maintenance, 6,683 34

Total, . . . . . \$13,366 68

**AMOUNT OF BUSINESS.**

The following shows the number of passengers, by stage, and amount of freight between Gordon and the direction of Milledgeville, for the year 1845 and 1846, as furnished by the company's agent at that station:

1845—Passengers ..... 1,590  
" Bales of cotton ..... 4,677  
" Other freight, tons ..... 687  
1846—Passengers ..... 982  
" Bales cotton ..... 4,593  
" Other freight, tons ..... 905

Of course the discrepancy in the number of passengers between the two years, is owing to the Legislature holding a session in 1845, and not in 1846. It is estimated by the agent, that 1,000 persons passed between Gordon and Milledgeville, in the same period, by private conveyance.

The following, in relation to the probable amount of business that would offer, was furnished by a gentleman who has given much attention to the subject. I submit it without expressing any opinion of my own, not being in possession of the facts, with the exception of the above statement, on which an opinion might be based. That the facilities which a railroad would afford, would greatly increase the business, admits of no doubt.

**ESTIMATED RECEIPTS.**

17,000 bales of cotton ..... \$5,100  
Other freights—Baldwin ..... 4,000  
" " Putnam ..... 2,500  
" " Jones ..... 1,000  
" " Jasper ..... 2,500  
" " Penitentiary ..... 2,000  
" " Factory ..... 1,500  
Receipts from mail ..... 1,000  
" " passengers ..... 5,000

\$24,600

Which, after deducting expenses, would be equal to 7 per cent. upon the capital.

Permit me here to express the hope, that this work, so important to Milledgeville, and I may say, the interest and convenience of the State at large, will not fail of speedy accomplishment. To secure this end, it would seem but just, if I may express the opinion, that the State, if necessary, should come to its aid, by taking stock that would amount to a tax upon the public property in Milledgeville, equal or approaching that voluntarily assumed by the citizens of Milledgeville for the same purpose. The advantages to the State, in the item of transportation for the penitentiary, and in the enlarged market it would afford for its manufactures, must be obvious. Another important feature is, that on the completion of the Wilkes county road, which now appears to be placed beyond doubt, cars could be run from the very gates of the penitentiary to the State road at Atlanta—when it might become the work shop for many of the equipments, now furnished from the north, and elsewhere, at much greater expense.

In alluding to this subject at all, I do not wish to be understood as in any way conveying the views, on this point, of those interested in the work. These brief remarks are made entirely without previous consultation with any one. I am not apprised that it is contemplated to apply to the State, thro'

the Legislature, for such aid. My object is only to show forth the grounds upon which a claim might be fairly based.

In conclusion, permit me in this manner to express my thanks to Col. Kenan, Mayor, and to the other citizens of Milledgeville and its vicinity, to whose co-operation in the field and elsewhere, I am much indebted.

F. P. HOLCOMB, Civil Engineer.

#### Atlantic and St. Lawrence Railroad. Annual Report.

We have received a copy of the report, giving the proceedings of this company up to 1st August last; from which we learn that they are making good progress. Twenty-eight and a half miles were then under contract, and a large portion of the work done—and eighteen and a half miles more were to be—and were—put under contract on the 10th of August, making 47 miles, or about one-third of the distance to Canada line.

We give the engineer's report in full—that the character of the country and the condition of the work may be understood. We also give an extract from the president's report, that the undeveloped resources of the country may be judged of; and from these it will be seen that the route, as a whole, is not only an exceedingly favorable one, but also that the completion of the road will open the door to resources and power, which would be of little value, at least for a long time to come, without it.

The terminus of the road at India wharf, in Portland, is exceedingly well situated for the transaction of an extensive business. It has a large water front with ample depth of water for shipping, and space for depot buildings, without interfering with the ordinary business of the city, and without being distant from, or inconvenient to, the principal business streets.

On a recent visit to Portland, we could see a manifest improvement in the appearance of the place—as compared with two or three years ago—showing that the influences of works of internal improvement are apparent from the date of their location—or at least long before their completion.

The people of Portland have done nobly in this matter, and they will find their interest in its results. They have also commenced a large establishment for the construction of locomotives and machinery; the buildings now nearly completed, are 300 feet long, by 60 feet wide—erected in a very substantial manner—near the depot.

We understand also that a rolling mill, for railway iron, is to be erected there at an early day—thus preparing to furnish the road, and at the same time to give it business.

It will be observed by Mr. Morton's report that the heaviest grade from tide is only fifty feet to the mile, and only thirty-five feet towards tide, or in the direction of the heaviest business; which is at this day, comparatively, not difficult to be overcome—and the curves are easy, with a large proportion of straight line.

Our readers, however, can appreciate its favorable points, and therefore we refer them to the ENGINEER'S REPORT.

ENGINEER DEPARTMENT,  
August 2, 1847.

HON. W. P. PREBLE, President Atlantic and St. Lawrence Railroad Company.

SIR: I have the honor to submit a brief report of the operations of this department during the past year, and the present state of your work now in progress.

At the date of the last annual meeting of the stockholders there had been 11 57 miles of the road located, and the grading placed under contract. The work was commenced about the 20th of August last, and has been progressing steadily up to the present time.

At that date, also, the preliminary surveys for a further extension of your road were in progress, embracing the examination of two routes, known as the Eastern and Western routes, extending from North Yarmouth to a point near Mechanic Falls, a distance of about 24 miles.

The results of these surveys were submitted to the board on the 22d of August, and soon thereafter the western route was adopted and a location ordered.

The line was located to a point in the town of Danville, a distance of 17 12 miles, and the grading and bridging let to responsible parties on the 23d of November last. A portion of this work was commenced in December, but the severity of the winter and the lateness of the spring prevented the contractors from progressing as rapidly as was desirable.

The contractors on the whole line have, during a portion of the spring and summer, labored under much embarrassment, resulting from the great scarcity of laborers and teams.

These difficulties have been enhanced in consequence of the large number of public works now in course of construction, and the great demand for laborers in this vicinity.

A large amount of work has, however, been done, and the grading of a number of sections is now nearly completed.

The total length of line now under contract is 28 69 miles, and it is divided into 18 sections, varying from 1 to 2 1/2 miles in length.

Section No. 1 extends from India wharf to Martin's Point road, and is 2 12 miles in length.

The total amount of excavation and embankment in the roadbed of this section is 72,000 cubic yards, of which 11,000 cubic yards are rock.

There have been 45,000 cubic yards removed, leaving yet to be excavated 27,000 yards, of which 2500 yards are rock.

There are 6,000 cubic yards of sea wall on this section, one-half of which is now completed.

The total length of pile bridging is 4,500 feet, 2,500 feet of which is nearly finished. The timber and piles for the remaining bridging are nearly all delivered and its construction is to be commenced immediately.

The cribwork for the wharf, and the filling in for depot grounds are under contract and progressing satisfactorily.

Section No. 2 is about one mile in length. The work on this section is done except the ballasting for the track.

Section No. 3. Length one mile. There yet remains on this section 8000 cubic yards of earth and 1500 yards of rock to be removed from road bed; the masonry is completed.

Section No. 4 is .95 of a mile in length, and embraces the heavy work at the Presumpscot river.

There have been 67,000 cubic yards of earth excavated and deposited in embankment, and there yet remain 32,000 yards to be removed.

The bridge for crossing the Presumpscot river has two spans of 150 feet each, and its total length is 320 feet. The roadway is to be on the top of the trusses which are elevated 27 feet above tide.

The east abutment of the bridge is nearly completed, and the foundation of the pier is ready for the reception of the masonry.

The work for the foundation of the west abutment is in progress.

The steam under water excavator is now removing the mud and a considerable portion of the rock is laid bare.

A large portion of the stone required to complete the masonry is already delivered.

Sections Nos. 5, 6, 7, 8, 9 and 10, embracing a distance of 6 1/2 miles, are all completed except dressing the slopes, etc.

Section No. 11 is 2 1/2 miles in length, and the work is light. There have been 10,000 cubic yards of earth excavated, and a portion of the materials delivered for the bridge at Royal's river.

This bridge has one span of 120 feet, and is elevated 12 feet above the river. Section No. 12 is 2 35 miles in length.

The excavations and embankments on this section are generally light. There is, however, a considerable amount of masonry required for the bridge at the east branch, of Royal's river. There have been 9,000 cubic yards of earth excavated, and 900 yards of stone delivered on this section.

Section No. 13 is 2 4 miles in length, and the total amount of earth to be removed is 83,000 cubic yards. One-half of this work and all the culverts are completed.

Section No. 14. Length 2 48 miles. The work on this section is of a more expensive character.

Total amount of excavation is about 100,000 cubic yards, one-fourth of which is now done and the masonry nearly completed.

Section No. 15 terminates near Woodman's and is 1 93 miles in length. The grading of this section is not heavy, and there is but a small amount of mechanical work. About one fourth of the earth work is finished, and all the masonry is advancing rapidly to its completion.

Section No. 16. Length 2 miles. The total amount of earth to be removed from road bed, and new channel for Royal's river, was 87,000 cubic yards. The river has been changed at several points, by which the construction of two bridges on this section has been avoided.

There yet remain three bridges to be built of 60 feet span each, the materials for which are now being delivered. One-half the earth work and two-thirds the protection wall on this section are completed.

Section No. 17 is nearly 2 1/2 miles in length and terminates at the Danville road. The work on this section is not in advanced state. The channel of the river has been changed on this section, by which two bridges are avoided.



There is one bridge of 90 feet span to be constructed. Considerable progress has been made in the grading, and one-half of the protection wall is finished.

Section No. 18. Length nearly  $1\frac{1}{2}$  miles, and terminates at the Hotel road. The work on this section has been commenced, but not much progress has yet been made.

Measures have been taken to increase the force on all the heavier sections in order that the whole grading may be completed at nearly the same date. The portion of the line now under contract comprizes the heaviest work on your whole road, and if we except section No 1, the cost will still be less than the average of most other roads.

On nearly one half of the line now under contract, the cost of grading and bridging will not exceed \$5,000 per mile. The excavations and embankments have been laid out for a single track, having a width of 22 feet in excavation and 15 feet on embankments. The slopes are in the ratio of  $1\frac{1}{2}$  ft. base to 1 foot rise. The larger mechanical structures are designed with a view to a double track. The pile bridges are both in the vicinity of the terminus and are constructed of the requisite width for two tracks.

The masonry for the Presumpscot bridge, and other structures which cannot be enlarged hereafter for the second track, without great difficulty and excessive cost, have been designed for a double track. The woodwork is for a single track, and so arranged that the additional width for a second track may hereafter be given without any interruption to the traffic of the road or difficulty in the execution of the work.

The total disbursements through this department up to the 1st of August, 1847, amount to \$131,175 99.

By a resolution of the board, dated June 21st, 1847, the extension of your road was ordered to a point in the town of Paris.

The location of this division of the road has been made, and the work advertised for letting on the 10th inst.

The length of this division is 18 57 miles, making a total distance from Portland of 47  $\frac{1}{2}$  miles. The work on this division is unusually light, and the soil is generally sand.—There will be but a trifling amount of rock excavation on the whole line.

The alignment of the road is favorable—there being 37 13 miles, or 78 per cent. of the whole line straight.

The following is a synopsis of the grades of your road so far as located :

Level.....	12 58 miles.
Less than..... 5 feet per mile.	1 75 "
from 5 to 10 " "	3 60 "
" 10 to 15 " "	3 55 "
" 15 to 20 " "	6 21 "
" 20 to 25 " "	6 07 "
" 25 to 30 " "	3 07 "
" 30 to 35 " "	10 40 "
	47 26 "

Before closing this report, it is proper that I should briefly allude to the surveys made at an early period for other portions of your road, and the general features of the country through which it passes.

From reports heretofore submitted to the

board you are aware that your present engineer department was organized about the 1st of November, 1845, and that the fall and winter were occupied in making preliminary surveys of the various routes proposed for your road.

The great extent of country to be examined, and the advanced period of the year at which these examinations were commenced, necessarily required that the field operations should be continued through a considerable portion of the winter.

These surveys extended over the whole country between Mechanic Falls and the boundary line of Canada, embracing a great variety of routes, a number of which passed through a new section of country, in the survey of which at that inclement season of the year many difficulties were encountered.

The whole was completed by the middle of February, 1846, giving an extent of line surveyed of over 250 miles, and the results of these examinations reported to the board in the month ensuing.

Without again repeating the elaborate details of the various surveys, which have been given at full length in the several reports heretofore submitted, I would only here observe that those examinations demonstrated that the country was of the most favorable character for the cheap construction of your road, with grades and curvatures—admitting of great speed and economy of transportation.

That the distance from the Province line to Portland by the *longest* route surveyed, was about 150 miles, and that the line follows for nearly the whole distance the vallies of large streams, allowing gentle grades which are generally descending towards the seaboard.

The principal undulation in the profile of the road is in passing from the Connecticut to the Androscoggin valley, and from the latter to the Little Androscoggin.

Commencing at the boundary line and following this route, the average descent of the Connecticut valley to Northumberland, a distance of 30  $\frac{1}{2}$  miles, is 6  $\frac{1}{2}$  feet per mile; thence following up the Ammonoosuck river to the summit between it and the Androscoggin, a distance of 22 miles, the average ascent is 9  $\frac{1}{2}$  feet per mile, and from the latter point to Bethel where the line leaves the Great Androscoggin river, a distance of 29  $\frac{1}{2}$  miles, the average descent is 14  $\frac{1}{2}$  feet per mile.

Thence ascending to the head waters of the Little Androscoggin, a distance of 18  $\frac{1}{2}$  miles, the average ascent is 3 19 feet per mile; thence following down the Little Androscoggin to a point where the line strikes across to the valley of Royal's river, a distance of 21  $\frac{1}{2}$  miles, the grades maintaining the requisite elevation to pass without a summit, the average descent is 15  $\frac{1}{2}$  feet per mile.

From this point to Portland the distance is 28  $\frac{1}{2}$  miles, nearly the whole of which distance the road follows the valley of Royal's river and its branches, or other small streams: having but few undulations, and no grades that will exceed 35 feet per mile.

These vallies are all favorable, being ge-

nerally broad and having nearly an uniform descent and a good general direction.

The ground is such as to permit a favorable distribution of the rise and fall, requiring no excessive cuttings or embankments.

The above indicates the general features of the vallies followed by your road. In adapting the grades to the ground so as nearly to conform to its general surface and to permit the most economical construction, greater inclinations will of course be required than those above given. The maximum, however, ascending *west*, will not exceed 50 feet per mile, and ascending *east*, 35 feet per mile—both being comparatively for a short distance.

From the character of the business which will be done on your road, it is evident that much the greatest amount of tonnage will be in the direction of the seaboard, and it therefore becomes important in its location, that the grades should as far as practicable be so arranged as to favor the preponderance of the trade.

The character of the country fortunately enables us to accomplish this to a very great extent. From an examination of the profile of the line, it will be observed, that over 110 miles of your road will be either *level* or *descending towards the Atlantic*, and that a large portion of the remaining distance, the grades are gentle, and in no case will exceed 35 feet per mile.

The country through which it passes is mostly a well cultivated and fertile agricultural district, and abounds in all the elements of wealth. There is an unequalled extent of water power in the vicinity of the line, a portion of which is improved, and it only requires additional means of intercommunication to bring the whole into successful operation, and to develop the great resources of the country.

Your road in connection with the St. Lawrence and Atlantic road in Canada forms a perfect line from the Atlantic at Portland to the St. Lawrence at Montreal, and adopting the *longest* route yet surveyed for each of these roads, it is much shorter than any other line of roads yet projected between the St. Lawrence and the seaboard.

The arrangement entered into by your company with the Provincial corporation, provides that the whole business of the two roads shall be done upon the same basis, and rendering them, so far as the cost of transportation is concerned, nearly equivalent to one line.

All the other routes between the St. Lawrence and the seaboard, which may come in competition with your road for the western trade, will labor under the disadvantage of not only being much longer, but will be operated by six or seven different corporations. All of these corporations having a separate organization of officers, agents, engineers, etc., and each furnishing their own motive power for their respective roads, several of which are short, and operating the whole in connection, are subject to greater expense than one corporation working an equal aggregate length of road.

Your road and that of the Provincial cor-

poration are of such length as will permit their being operated in the most economical manner, which, together with their superiority in other respects, will enable you to compete successfully with any rival road.

In conclusion it may be well to observe that the Provincial corporation is vigorously prosecuting the construction of its road, 45 miles of which are now under contract. It is expected that 30 miles will be completed and opened for business in August next.

This part of the line passes through a level and highly cultivated country, affording great facilities for the construction of a perfect road.

On that part of the road now located, the grades are uniformly easy, and nearly 95 per cent. of the line is straight. That corporation is extending its surveys with a view to determine definitely the route to the boundary line, and the most feasible point for uniting with your road.

With the same object in view, and in compliance with a resolution of your board, I am also about to commence the surveys on this side of the boundary.

I have the honor to be, sir,  
Your obedient servant,  
A. C. MORTON,  
Chief Engineer.

The financial condition of the company is exhibited in the TREASURER'S REPORT.

The treasurer of the Atlantic and St. Lawrence railroad company, in compliance with the by-laws, respectfully submits to the stockholders a report of the transactions of the office to the 31st July, 1847, inclusive.

The resources of the treasury to the above date have been from

Advance money on 10,189 shares.....	\$50,945 00
First assessment.....	47,295 00
Subsequent assessments.....	89,970 00
In advance for future assessments.....	11,337 07
Interest and notes payable.....	39,479 87
<b>Total.....</b>	<b>\$239,026 94</b>

The amount paid and finally chargeable to construction of the road, to January 31, 1847, inclusive, is the

Amount paid contractors for labor and materials delivered.....	\$108,671 74
Engineer department, including instruments.....	22,504 25
Corporators' expenses for surveys, printing, etc.....	3,315 60
Office, agency and general expense accounts and interest.....	9,626 65
Fencing.....	1,888 27
Depot lands (of which \$38,000 by notes of the company).....	51,391 25
Land damages, (\$195 30 of which by note of the company to guardian of a minor).....	18,876 40
<b>Total.....</b>	<b>\$216,274 16</b>

The treasurer's books and accounts have been examined and found to compare with the trial balance sheet as adopted by a committee appointed by the directors.

There have been five assessments of \$5 per share made by the directors; the fourth was payable only on the 26th July, and the fifth is not payable till the 28th August, inst.

In the purchase of the real estate for depot accommodations, a credit was allowed on an

amount of \$38,000; and adjusted by notes of the company on time as follows:

\$15,000—payable in 1 to 15 years, interest semi-ann.	
10,000 " 10 " " "	
8,000 " 1 to 8 " " "	
5,000 " 15 " " "	

with a mortgage of the premises as additional security. And on settlement of a life lease on one part of the premises, the company, under an award of the county commissioners, are obligated to pay an annuity of \$40, during the life of the lessee and her mother, and the survivor of them.

CHAS. E. BARRETT, Treasurer.  
Office A. & St. L. R. R. Co.,  
Portland, August 24, 1847. }

We make the following extract from the president's report, descriptive of the country through which it passes, and illustrative of its vast resources to be developed, and improved by the road; which, in turn, will be sustained, and its proprietors and the people of Maine enriched by its rapid and vast increase. He says—

"At their recent session the legislature of New Hampshire passed an act constituting the Atlantic and St. Lawrence railroad company a corporation within that State. The act is liberal in its provisions, and grants to this company all the powers it could reasonably ask for. It places the location, construction and management of the road in its whole extent from the Canada line to Portland, in the hands and under the control of the same company and under the regulation and management of the same board of directors.

"All objections to passing through New Hampshire being removed, the general route of the road may now be regarded as definitely settled. Commencing at the foot of India street on the navigable waters of Portland harbor, it passes onward about 11 miles to the valley of Royal's river at Gooch's falls, near the villages of North Yarmouth. Here the eastern sea board travel would naturally fall on to it. Following up the valley of Royal's river about 16 miles, it crosses the Danville road to a point distant about six miles from Lewiston falls. Here the Androscoggin and Kennebec railroad now in progress of construction connects with it, opening to, and bringing in upon it, to a large extent, the travel and business of Lewiston falls—of the Androscoggin valley—of the upper portion of Kennebec county, and also of the interior counties of Franklin and Somerset. Passing onward, leaving the valley of Royal's river, following up the valley of the Little Androscoggin, it strikes and crosses that river at Mechanic Falls, distance about 10 miles.—Here the Buckfield branch railroad recently chartered will connect with it, and here the road will receive the travel and business of that thriving and productive section of country. Pursuing upward the valley of the Little Androscoggin, passing in the vicinity of True's Mills, and Factory village, so called, or Craigie's Mills, about 10 miles, it reaches Paris Cape in the vicinity of Norway and Paris, drawing in upon it the travel and business of that rich and populous region. Still following up the valley of the Little Androscoggin, passing on the way Snow's Falls and

Bacon Falls, it reaches Bryant's pond, the source of that river. This point is 15 miles from Rumford Falls, on the Great Androscoggin, one of the greatest and most available water powers in New England. Passing from Bryant's pond into the valley of Alder stream by Lock's Mills, the route strikes the bank of the Great Androscoggin near Bethel Hill village, distant from Paris Cape about 22 miles. Here the road will command the travel and business of the whole valley of the upper Androscoggin and of the Megalloway. Crossing the Androscoggin at Bethel, and following up its picturesque and romantic valley, bordered by the highest mountains in New England, the road in its course of about 20 miles, reaches Gorham in New Hampshire, distant from the base of Mt. Washington five miles only. From this point that celebrated mountain may be approached and ascended with more ease, in a shorter distance, and less time, than from any other accessible quarter in the vicinity of the White Hills. This point also is only five miles distant from Berlin Falls, the greatest waterfall in New England, where the waters of the Great Androscoggin, larger in volume than the waters of the Connecticut, descend nearly 200 feet in a distance of about two miles. From the valley of the Androscoggin, the road passes on a gradient of six miles of forty feet to the mile, over grounds of 1116 feet only above the tide waters of Portland harbor, into the valley of the Connecticut, reaching the banks of the Connecticut in the region of Lancaster and Northumberland in New Hampshire, and Guildhall in Vermont, distance about 26 miles. Here it is manifest the road will receive the travel and the business of the upper valley of the Connecticut and its tributaries, embracing the county of Coos in New Hampshire, and an important section of Northern Vermont.

"Here also the "Montreal" railroad thro' central New Hampshire will in due time it is hoped connect with ours, and form a circuit for the pleasure travel of the seaboard of N. England, passing from Boston by way of Concord and Meredith in the valley of the Merrimac to Lancaster, thence round north of the White Hills, and down the valleys of the Androscoggin and other rivers to the Kennebec country and Portland, and thence by steamboat or railroad to their places of residence. Following up the rich and highly cultivated valley of the Connecticut about 35 miles, the road reaches the parallel of 45 degrees north latitude, and connects with the St. Lawrence and Atlantic railroad at the boundary between the United States and Canada. Here, of course, the friends of the enterprize expect to receive for transportation to the seaboard the passengers and freight of the sister company, consisting of the rich productions of the west, and Canada, and of passengers seeking their way to Atlantic ports."

It may well be anticipated that, when this and the other roads now in progress in New England, shall have been completed, the pleasure travel will be largely increased, and that much of it will pass over this road on its way to or from the "White Hills" of New Hampshire and Montreal.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**  
Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

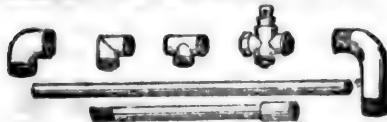
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JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

1y

**RAILROAD IRON.—100 TONS ENGLISH,**  
60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

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**FOR SALE—300 TONS (10 MILES) FLAT**  
Bar Rail, in parcels or wholesale—section 2½ inches wide by 1 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

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To all parts of the United States, North and South America, West Indies, India, [overland or otherwise.] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

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Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAML KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

41f

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc., by  
JOHN A. ROEBLING, Civil Engineer,  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.  
2v191y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arrester have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.  
Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merrin, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

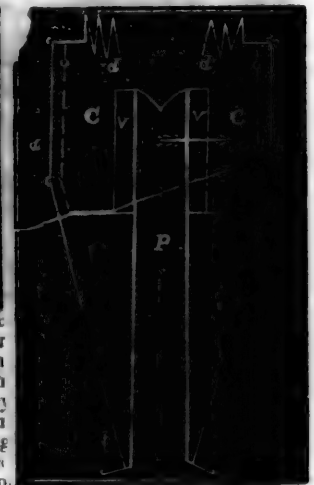
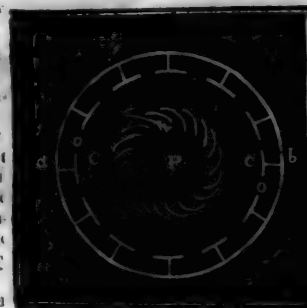
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

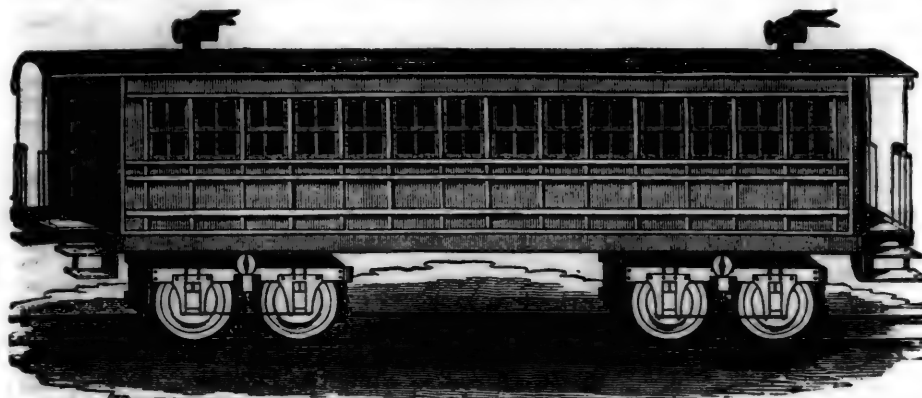
Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callen-lers; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
a45 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

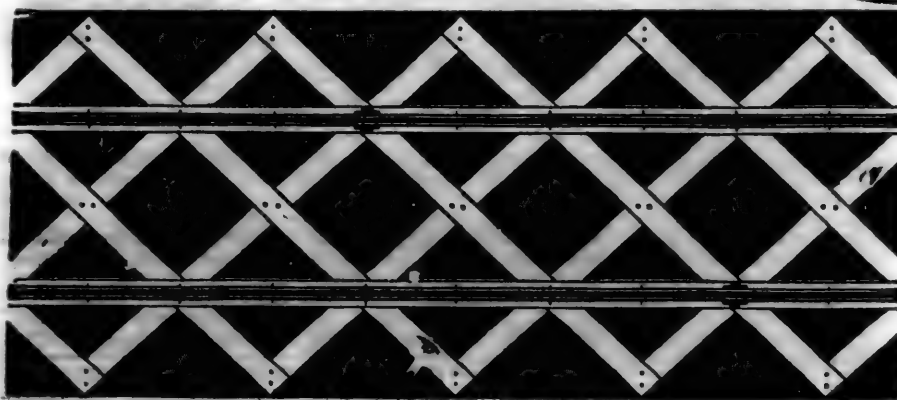


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestles for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.			
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686	96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57	24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101	25
Workmanship free of patent charge.....		600	00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33tf

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

### RAILROAD IRON.

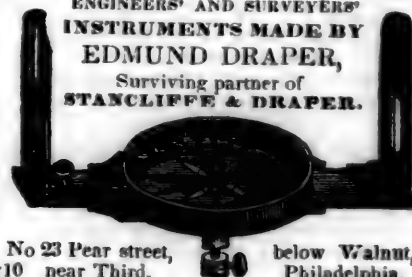
**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

Dec. 25, 1y\* Pres't. Mt. Savage Iron Works, Maryland.

ENGINEERS' AND SURVEYORS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents,  
1y48 77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

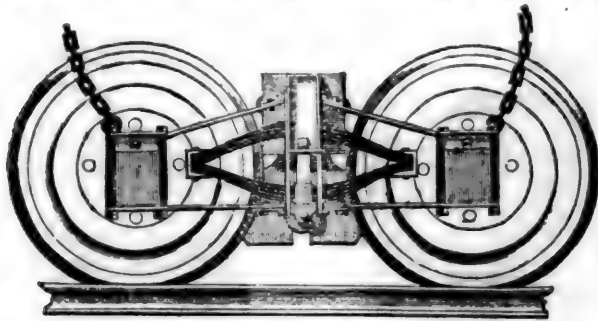
Orders for the above will be received and promptly attended to at this office.

32 1y



# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER

having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.		LBS.	INCH.	Tons.
11	4½	13	5	10	24	-		50	15-16	20
13	3½	8	3	8½	16	-		27	11-16	13½
14	3½	6	11	7½	12	8		17	9-16	10½
15	2½	5	2	6½	9	4		13½	1-2	7½
16	2½	4	3	6	8	8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

Philadelphia, Pa.

1y35

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

Reading, Pa.

ja45

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

(Signed,)

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

(Signed,) G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

(Signed,) T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

(Signed,) JOHN LEACH,

Jamaica November 12, 1845.

1y19

Sup't Motive Power

## THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorus,

Glendon,

Spring Mill and

Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

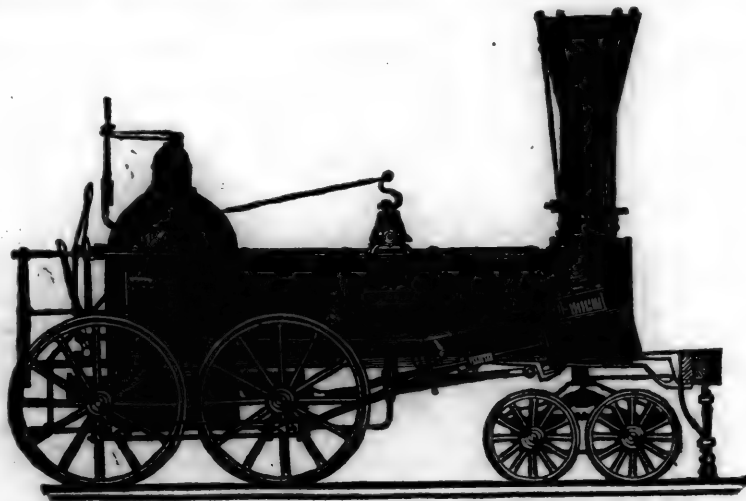
1y10

New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " { × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
35,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28f

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drifts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK &amp; CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York. 26f

**TO LOCOMOTIVE AND MARINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER &amp; MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28f

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz: Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**





**LITTLE MIAMI RAILROAD.—OPEN**  
TO SPRINGFIELD—Distance 84 miles—  
connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co.'s daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield. Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

**FARE.—From Cincinnati to Lebanon....\$1 00**  
" " " Xenia..... 1 50  
" " " Springfield... 2 00  
" " " Columbus... 4 00  
" " " Sandusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1 P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47tf W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**  
Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave  
Paterson at New York at  
8 o'clock a.m. 9½ o'clock a.m.  
11½ o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5½ o'clock p.m.  
On Sunday,  
8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.  
25tf Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cummerland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pitsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

#### WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 313y1

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

#### FARE.

Fare to York.....\$1 50  
" Wrightsville..... 2 00  
" Columbia..... 2 12½

Way points in proportion.

#### PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Harrisburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad..... 10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.  
31 1y

**L EXINGTON AND OHIO RAILROAD.**  
Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN**  
Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad .....190 Miles.  
Macon to Atlanta—Macon and Western.....101  
Atlanta to Oothcaloga—Western and Atlantic.. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50		0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20		0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs.		35
Crockery, per cubic foot.....	0 15		35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25		1 50
Ploughs, (small,) and Wheelbarrows.....	0 80		1 05
Salt, per Liverpool Sack.....	0 70		0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.			

Goods consigned to the subscriber will be forwarded free of Commissions.  
Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.  
Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime).... 60 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**  
Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.  
JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**  
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculum, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**  
line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

#### FARE BETWEEN NEW YORK & PHILA.

First class cars.....\$4 00  
Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board. Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies use. Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25tf



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50	and \$3.00
" " Reading,	58	2.25	and 1.90
" " Pottsville	34	1.40	and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 811

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.  
On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.  
Leave Philadelphia at 3½ p.m. } No line on Sun-  
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—33 miles from Chattanooga, Tenn.

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## RATES OF FREIGHT.

	Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 75
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at station.

Supt. of Transportation.  
Augusta, Ga., July 15, 1847. 4417

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 22½	1 54	1 05	0 21	0 66
and Knoxville & intermediate points.	0 22½	1 54	1 10	0 75	0 81
and Chattanooga.				0 61	0 86
Between Augusta and Decatur and intermediate points.	0 21	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	0 21	1 70	1 20	0 80	0 90
and Chattanooga.				0 65	0 85
Between Charleston or Savannah and Decatur and intermediate points.	0 32	2 30	1 40	1 05	1 10
and Knoxville & intermediate points.	0 32	2 30	1 40	1 00	1 10
and Chattanooga.				0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....	
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Sifters, Smiths' Bellows, Baskets, Tubs, Sifters, Brooms and other light articles, per 100 lbs.	
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hard ware, and other heavy articles not enumerated below.	
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.	
Per 100 lbs.	Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.  
Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.  
The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1836 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as the numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTER SERIES, VOL. III, No. 42

SATURDAY, OCTOBER 16, 1847.

[WHOLE No. 591, VOL. XX

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, October 16, 1847.

### Gillespie on Road Making.

We have received from the publishers, Messrs. A. S. Barnes & Co., of New York, a copy of this work; but at so late an hour that we have not been able to give it even a casual examination in time for this number of the Journal. We therefore now merely give the following advertisement, and the letter of Professor Mahan, of West Point, and shall refer to it again at an early period.

**GILLESPIE'S WORK ON ROAD MAKING.**  
A Manual of the Principles and Practice of Road making, comprising the Location, Construction and Improvement of Roads, (Common, Macadamized, Paved, etc.) and Rail Roads, by W. M. Gillespie, Professor of Civil Engineering in Union College. Published by A. S. BARNES & CO., 51 John St., New York.

LINDSAY & BLAKISTON,  
GRIGG, ELLIOT & CO., } Philadelphia.

### RECOMMENDATION FROM PROFESSOR MAHAN.

"I have very carefully looked over Professor Gillespie's Manual of Road Making. It is, in all respects, the best work on this subject with which I am acquainted; being, from its arrangement, comprehensiveness and clearness, equally adapted to the wants of Students of Civil Engineering, and the purposes of persons in any way engaged in the construction or supervision of roads. The appearance of such a work, 20 years earlier, would have been a truly national benefit, and it is to be hoped that its introduction into our seminaries may be so general as to make a knowledge of the principles and practice of this branch of engineering, as popular as is its importance to all classes of the community.

(Signed,) D. H. MAHAN,  
Professor of Civil Engineering in the Military Academy of the United States."

### Improved Steam Engine.

To the Editor of the Railroad Journal:

In your number of June 12th, there is a notice of some important improvements in the steam engine, purporting to have been made by Mr. C. C. C. Smith of Boston.

Now the improvements therein spoken of, have all been in successful operation. I have seen them attached and working on a land engine, and I believe they were attached to the engines of the ill-fated President, or some other of the Liverpool steamers. Certain it is, that Mr. Samuel Hall's English patent covers the whole ground, with the addition of a simple distilling apparatus, to supply whatever waste of pure water might occur. Yours, etc., H.

It is but just to the writer that we should say that the communication of "H." was received early in July last. We have heard nothing further in relation to Mr. Smith's improvements since our article above alluded to, but we should like to.

### New Orleans and Carrollton Railroad. Correction of Table.

The following letter was received early in July, and prepared for the compositor at the time, but by some accident mislaid until the present time. It is not, however, too late even now to correct errors and record facts—we therefore give it a place, and thus acknowledge its receipt, and apologise for its delay, at the same time.

To the Editor of the American Railroad Journal:

In your Table of Railroads you have named that from New Orleans to Carrollton, (No. 147) the "Carrollton and Brandon." I know of no such road; it ought to be the New Orleans and Carrollton railroad, which was chartered in 1833.

It was first opened in 1835. It is 5½ miles in length, from end to end. It cost \$300,000!! The rail is principally 3½ x 3, laid on cross ties 3 feet apart, and weighs 47 lbs. per yard. There was originally a double track in use for 5 miles—now there is but about 3½ miles, where the double track is kept up, (though it is fast becoming necessary to have the double track the whole extent.)

There is a branch of about a mile at right angles to the main line, used for horse cars only, on which a large business is done: the iron on which is 2½ x 1—though this is being replaced with a stronger flat bar.

The least radius of curvature is in the streets of New Orleans, and is 150 feet. The highest grade

per mile will not exceed 9 or 3 feet. The fare per mile is 4 cents.

There is a commutation of two kinds.

The enclosed advertisement will give some other information. Yours respectfully,

JOHN HAMMON, Engineer.

Carrollton, La., June 26, 1847.

It appears, from the advertisement, that the plan of commutation is arranged to accommodate the people—to induce them to ride—and even to sending the children to school. Tickets are sold for grown persons at \$30, and children going to school at \$6, a quarter. In this way a large amount is received which would not be under different system of management.

### Locomotive Workings.

The London Morning Herald is giving frequent comparative statements of the workings of locomotive engines on the English railways. It recently published a contrast between the working of three of the uniform gauge engines, the "Mazeppa," on the South Western, taking a train of 40 tons; Crampton's "London," with 60 tons; and Stevenson's "Snake," with 70 tons, on the London and North Western. Stevenson's engine, with pilot assistance, up the Camden Town incline, and in calm weather, performed the distance to Tring, nearly 32 miles, with the 70 tons, in 44m. 40s.; and Crampton's engine, without pilot aid, did it, with a slight side wind against her, in 44m. 10s., with 60 tons; the South Western engine, with a slight side wind against her, but with the better gradients, ran the 30 miles, with 40 tons, in 43m. 2s.; Stevenson's, with 70 tons, in calm weather, and assisted up the Camden incline, in 42m. 4s.; and Crampton's with a slight side wind, and without assistance up the Camden incline, took the 60 tons in 41m. 21s.: the maximum speed of the South Western engine, with 40 tons, was 54½ miles per hour, upon a falling gradient of nearly 21 feet per mile; Crampton's, with the 60 tons, 51½ miles per hour, upon a falling gradient of about 3½ feet per mile; and Stephenson's with 70 tons, 51½ miles per hour, upon falling gradients of 10 or 12 feet per mile. With the same trains, the South Western engine worked over 9 miles of rising gradients, averaging about 15 feet per mile, in 12m. 30s.; Stephenson's the same distance, over about the same gradients, in 11m. 9s.; and Crampton's in 11m. 48s. On other occasions, with 75 tons, the "London" attained a working speed of 56 miles per hour, and with 57 tons upwards of 60 miles per hour.—



The "Snake" took a morning mail with 70 tons at an average speed of about 31 miles per hour. All these workings are to be considered in the light of exceptional cases. It is most difficult to make anything like a perfectly fair contrast between the working of different locomotives, at different times, and over different lines. The steady working for successive weeks over the same ground with the same drivers, alone enables a correct judgment of speed and power to be formed. Still it is satisfactory to find constant attention turned to the subject.

Another of Mr. Crampton's engines has been completed for the Dundee and Perth, and made a satisfactory journey towards its destination, receiving in its progress many encomiums for its steadiness. We hear that upwards of 30 engines on this principle are in course of construction.

#### Items.

**The Great Rope.**—The great rope to be used on the Cowairs incline of the Edinburgh and Glasgow has arrived safely, and was landed at Granton pier. It weighed 9 tons 11 cwt.

**An Amusing Race.**—A race between a horse and a locomotive is reported to have taken place on the Newcastle and Berwick. It is related that as a locomotive was coming to Newcastle, near to Chat-hill, a spirited horse suddenly set off at full speed in front of the engine. The driver eased the engine, and endeavored, by frequent whistles, to drive the animal off the line, but in vain; for a full mile or more the horse held on his way with unabated speed. At length the engine coming rather close upon him, the animal darted on to the parallel line, still proceeded, and rushed once more in front of the engine. The driver, finding himself delayed, resolved to pass his opponent at all risks, and increasing his speed, soon came close upon his quarters, when the animal bounded aside, and kicked up its heels as the train passed, to the amusement of the whole train. The entire distance of the race was about four miles.

**Iron Bridges for Railways.**—The Commission for inquiring into the conditions to be observed by engineers in the application of iron in railway structures has been appointed. Lord Wrottesley, Professor R. Willis, M.A., Capt. Henry James, R.E., Messrs. G. Rennie, W. Cubitt and Eaton Hodgkinson are the commissioners, and Lieut. Douglas Gratton, R.E., is to be the secretary. We almost wonder scientific men accepted the office when the result of the gauge commissioners is remembered.

**Bradshaw's Guide** continues to march with the circumstances of the times. In the "Guide" for the present month the map distinguishes all lines that have the electric telegraph laid down upon them by a red line, and those in progress by a green line.

**Railway Signal.**—A Mr. Heinke has brought forward a mode of communicating with the engine-driver by means of a wire and bell—not a very novel suggestion.

**Paris and Boulogne Railway.**—The railway from Paris to Boulogne will shortly be opened within eight miles of Boulogne. Fast trains will then go from Paris in eight hours. The mails which leave Paris at 7 P.M., will arrive at Boulogne at 3 A.M., and if—as the Daily News observes—a postoffice steamer lay in the roads, ready for their conveyance to Folkestone, they would reach the latter place before 6, and, with a fast train, might be delivered in London before 9 A.M. Thus, by proper arrangements, the correspondence between Paris and London might be so regulated that the letters and despatches leaving either city in the evening, might be delivered in the other the next morning.

#### Contrasts Worthy of Record.

The millions, who are benefited by railways, can in no way so well understand the amount of their obligation, as by occasionally contrasting the past with the present, as is done in the following from the Devonshire Chronicle.

"It is within our recollection," says the Chronicle, "that we paid for the smallest parcel by coach 2s. 3d., which the rail now brings us for 1s. 6d. The parcels weighing above 56 lbs. were charged 11d. per lb.; thus the carriages of 100 lbs., by coach would be 12s. 9d.; by the rail we can have parcels of 100 lbs. for 3s. 6d. to 4s., and in bulk of 5 cwt. for 8s. 6d., or about 1s. 9d. per cwt.—to say nothing about the time of transit. The wagon which brought us our goods in seven or eight days did the tradesman the favor to charge him 7s. 6d. per cwt., while the gentleman was charged 10s. To men in large businesses, such as drapers, grocers, etc., the difference in the carriage charges would be at least £50 per annum, and the charge upon extra stock another £50. Then turn to the article coals. They were last winter—long and trying as that winter was—charged from 25 to 28s. per ton the best, but for the rail they would have been 30 to 40s. per ton; indeed it is not very long since coals were charged in Exeter 37s. 6d. for 12 cwt. Now then, let us ask, who derives the benefit of the cheap carriage of linens, woollens, sugars, teas and coals? Does anybody believe that the shopkeeper pockets the difference?—That is impossible; his next door neighbor would undersell him if he were to attempt it. It is therefore a demonstrated fact that the low prices at which articles of dress and grocery are sold in this city—lower we believe than in any other place of its extent—is mainly owing to the facilities given to business by the establishment of the railway."

#### South-Eastern Railroad.

##### Semi-Annual Meeting.

The Directors of this Company, at their half-yearly meeting, on the 16th of September, report that "the accounts of the South-Eastern for the half year ending on the 31st of July, 1847, show that the gross receipts of the company have amounted, during that period, to 217,874l. 2s. 5d.; that the working expenses have been 62,757l. 11s. 8d.; the rent of the Greenwich and Whitstable, 30,712l. 10s.; the rates, Government duty and toll of the Croydon, 26,308l. 4s. 8d.; making the expenditure on revenue accounts, 109,779l. 6s. 4d. The balance carried to the account of profit and loss is 108,095l. 16s. 1d.; and that account shows an amount at the disposal of the proprietors of 94,265l. 14s. 10d."

"The comparative statement of passenger traffic for the half-years ending on the 31st of July, 1846, and 31st of July, 1847, shows the following satisfactory result:—

1st Class.	2d Class.	3d Class.	Total.	£.	s.	d.
1847	112,915	258,279	405,513	776,707	129,966	12 5
1846	106,279	239,999	387,629	733,907	119,494	10 7

Incr's 6,636 16,280 17,884 42,800 £10,493 1 10

A similar statement of traffic on the Greenwich branch exhibits the following comparison:—

1st Class.	2d Class.	3d Class.	Total.	£.	s.	d.
1847	243,803	514,579	700,911	1,459,233	30,799	15 11
1846	239,575	504,805	691,667	1,433,747	30,869	1 10

Incr's 3,928 11,774 9,244 25,546

Decrease £69 5 11

The merchandise department has yielded 34,391l. 17s. 10d. during the last half-year against 25,796l. 11s. 6d. in the corresponding half year of 1846, showing an increase of 8,595l. 6s. 4d."

"The Directors feel it their duty to acknowledge

here the great advantage which the company has derived from the daily double passage each way between Folkestone and Boulogne, performed by the splendid steamships of the South-Eastern and Continental Steam Navigation Company. The double service commenced on the 1st of April, 1847; and the following table shows the extent to which the public have availed themselves of this facility, and of the consequent advantage which the South-Eastern has derived therefrom.

#### Passengers conveyed from April 1 to July 31.

	1846.	1847.	Increase.
To Boulogne	7,739	9,206	1,567
From Boulogne	7,252	8,897	1,645
	14,991	18,103	3,112

"The proprietors will doubtless agree with the Directors, that had the Boulogne and Amiens line been opened, the traffic would have been double what it has been.

"In conclusion, the Directors have once more to assure the proprietors of their devoted attention to the interests of the company, and of their confidence that those results which the proprietors have, with them, so long looked forward to, will now be realised."

The capital account of this company would alarm us in this country. The following statement shows the share account but not the lands.

#### Share Account, July 31.

##### DEBTOR.

First capital—Calls on 28,000 shares, at 50s. per share	£1,400,000	0	0
Second capital—Calls on 28,000 shares, at 25s. per share	700,000	0	0
Third capital—Calls on 28,000 shares, at 20s. per share	560,000	0	0
Shares paid in full	2,400	0	0
Fourth capital—Calls on 42,000 shares, at 17s. per share	714,000	0	0
Shares paid in full	1,522	6	8
Fifth capital—Calls on 31,500 shares, at 15s. per share	472,500	0	0
Shares paid in full	1,305	0	0
Sixth capital—Calls on 285,000 shares, at 6s. 5s. per share	1,781,250	0	0
Shares paid in full	12,428	15	0
	£5,645,406	1	8

We omit the details of expenditure of this vast amount of capital, and give only a few items, paid during the half year ending July 31, 1847, viz:

Parliamentary expenses	£78,626
Engineering	14,931
Land	111,761

We should have few railroads in this country, if our legislators worked for nothing and found themselves—and our land was owned by Lords and ladies!

The total expenditure of this company, up to July 1, 1847, appears to have been £6,396,218—or about \$32,000,000.

#### Atmospheric Railway.

The London Herald reports the late experiments on the South Devon atmospheric as follows: It says that "With a thirty ton train, a speed of 67 miles per hour was obtained; with 50 tons, 60 miles; and with 100 tons, 37 miles. Our contemporary adds—among the improvements a prominent one is to be found in the station arrangements. The passage of the piston is now made throughout the line without any interference with the rails, and minus any of the peculiarly formed switches that were adopted on the Croydon line. By a very simple contrivance the piston is lifted over the ordinary crossing rails with ease and certainty at the highest velocities; and the starting of the trains from a state of rest at the sta-

(ions, even before the piston has reached the exhausting tube, is most ingeniously contrived. The latter operation is effected by a supplemental tube, fixed completely outside the rails, and the connection between this tube and the carriage ceases immediately after the train has left the station and the train piston has left the propelling tube. Thus ordinary stations and station arrangements, in every respect suitable and convenient for locomotive purposes, are made available for working trains by atmospheric power. It is stated that the whole of the traffic between Exeter and Newton will be worked by atmospheric power in the course of a month."

#### Electric Telegraph Reporting.

We find the following paragraph in the London *Mechanic's Magazine*, for August. The writer claims, for the *Manchester Times*, of 7th August last, the credit of publishing the first Telegraphic Report of the proceedings of a public meeting. That may have been the first instance of the kind in England, or even in Europe, but not so in this country; as the proceedings of Congress have been published in Philadelphia—one hundred and forty miles distant; and in New York, two hundred and thirty miles from the capital, within the hour, almost, of the adjournment of the house; and the Message of the Governor of New York, delivered at Albany—making four or five columns of fine type, in the *Tribune* and *Herald*, and indeed all the Daily papers—was issued in the city of New York—150 miles distant—within an hour of the close of its reading in Albany. This was indeed an extraordinary performance then, but now, the same thing can be done over a line of at least five hundred mile—East ward, North ward and West ward—at the same time.

The paragraph referred to is as follows, viz: "The services of the electric-telegraph have at length been called into requisition for the purposes of the press. The second edition of the *Manchester Times*, Aug. 7, 1847, contains a report of a public meeting, supplied by the above means; and this, we are informed by the proprietors, is the first time that the electric telegraph has been made available for such a purpose."

#### Magnetic Telegraph.

The following circular was received by us early in September, but in consequence of several weeks' absence, it has not been published.

We know nothing of the particulars of the controversy between Messrs. Morse, Kendall, Smith & O'Reilly, and of course take no part or interest in it; we do, however, take a deep interest in the extension and improvement of the system—and therefore give place to Mr. O'Reilly's circular, in the belief that it may lead to a further investigation, and to competition, by which alone the system can be brought to afford the greatest benefit to community.

#### Progress and Results of Electric Discovery, with Special Reference to Telegraphing.

The unwarrantable attempts at monopoly in the telegraph enterprise—the assertion that no improvement in telegraphing can be used in the United States without "permission" from the controllers of a single patent—the denunciations fulminated against all who have dared to encourage improvement in this important enterprise—render it expedient that the public shall have ample opportunity for determining which of the American telegraphs is most original in character, and most valuable as reliable means of intercommunication between remote points: and, therefore, in behalf of associates in the "At-

lantic, Lake and Mississippi lines of Telegraph," I feel authorized to offer a premium of THREE HUNDRED DOLLARS for the best *Essay on the Progress of Electric Discovery, with Reference to the Telegraph System*. The Essays to be brief and comprehensive as the subject will admit—adapted to general circulation—but calculated to present the facts in the clearest light, that readers generally may determine for themselves the extent to which any one man may rightly fully claim exclusive property, "not merely in a machine," or mode of application, but in "the general principle" of electro magnetic telegraphs, "no matter by what combination of machinery that 'principle' may be made available." With the facts that may thus be brought distinctly before the public, it may soon become generally understood whether Professor House's *Letter Printing telegraph* (the only American telegraph patented in Great Britain and other European kingdoms as well as in the United States) is any infringement of Prof. Morse's patent, or of anything which Prof. Morse has a right to claim; and it will also be seen whether the telegraph system patented in the United States Patent office by Col. Charles B. Moss, of Virginia, under claim for a patent, (in the same way that Prof. Morse patented his "vital" "principle" as late as 1845-6) is or is not at least as original and effective as any telegraph that makes arbitrary signs like the dots and lines first used by Steinheil and by Davey in 1837 and 1838, and afterwards combined by Prof. Morse in his first patent of 1840. It may then also be seen whether any one of the above named inventors had any exclusive right to a monopoly of the "general principle," which authorizes her agents to dictate terms to the others; or whether it is requisite for the American people, who desire to use either of the telegraphs, to crave permission from the holder or controller of any one patent, before they can use the improved and different system covered by another patent, as in the case of Morse and House.

"That the public generally shall have ample guarantee for the BEST MODES of telegraphing which AMERICAN INGENUITY has yet devised, the right to use three different systems has been secured by me, to the end that no delay or difficulty need ever occur from relying exclusively on any one mode of telegraphing upon the lines constructed through my agency."

This is the declaration under which I have constructed and am constructing the lines of the "Atlantic, Lake and Mississippi telegraph," since we crossed westward of the Ohio; and while my associates and myself are willing to fulfil contracts as far as Morse's telegraph is used, it is desirable to ascertain whether or not we can be debarred from securing for the public along our lines the benefits which any other Telegraph system affords—especially as the associates of Professor House, conscious of the originality and value of his "Patent Letter-Printing Telegraph," and unawed by the denunciations fulminated against them, have signified their willingness to try titles with the controllers

of Morse's Patent, (in the Courts or by Arbitration, under any penalties that may be required,) for the purpose of determining which of the two inventions is most original in character—which Patent (if either) is invalid—and which mode of Telegraphing reflects most credit on American science and ingenuity—though it is but justice to say that some of the most competent judges in the Union, (such as Professor HENRY, familiar with House's as well as Morse's Telegraphs, declare that House's system does not infringe on Morse's.

In memorializing the Ohio Legislature last winter for right of way for our Telegraph Lines, I stated that, on the part of my associates, "there is no disposition to seek exclusive favors" for "any mode of Telegraphing," but that, on the contrary, "it is believed the permanent interests of the Telegraphic system, as well as of the public, would be promoted by granting facilities impartially to all individuals or companies who have confidence enough in any Telegraph system to induce them to bestow their efforts and their money for its advancement"—"my associates, as well as myself, believing that the best security for the best system of Telegraphing will be found in throwing open the doors for free and honorable competition—any thing like monopoly or favoritism being as contrary to the real interests of the Telegraph system generally, as it is repugnant to the doctrine of 'Equal Rights.'"

Willing as heretofore to secure to each inventor all that the respective contracts call for, in the different regions covered by different contracts, it is a matter of some interest to the public, as well as to my associates, to know how far any one of these of other inventors, or their Agents or controllers, can arrogate to themselves the right to denounce all others who use a different Telegraph system without their "permission."

The importance of the subject, growing with the extension of the Telegraph system through the Union, renders it desirable that the public should have the facts in a comprehensive form for the popular judgment; and it is hoped that the statements now invoked will aid in guiding the community to proper decisions.

In this important enterprise, it will probably be found that PUBLIC CONFIDENCE is more potent than Legislation or Monopoly in extending and protecting that mode of Telegraphing best calculated to promote "the greatest good of the greatest number."

The Essays to be addressed, under seal, within ninety days, to the care of Henry E. Spencer, Mayor of Cincinnati; N. W. Thomas, President of the City Council; and James C. Hall, President of the Chamber of Commerce; to be by them handed over to a committee of distinguished scientific men, either in the Eastern or Western Cities, who shall award the Premium within twenty days thereafter.

In behalf of associates in the Atlantic, Lake and Mississippi Telegraph,

HENRY O'REILLY.

Cincinnati Exchange, Sept. 1, 1847.



### Should the Government own the Lines of Telegraph?

This question has been often asked, and answered in very different ways. The following article from the Scientific American, is to the point, and mainly in accordance with our own views, as far as it goes; but we go for enterprise and competition, and not for government, or company monopoly.

It has occurred to us, and so we have before said, that a line of substantial and permanent posts might be erected along the principal railroads, by the Railroad Company, on which numerous lines of wire might be placed and operated by different individuals, and in competition with each other; the whole to be kept in order by the Railroad Company, for which they should receive a share of the profits, or a stipulated annual rent. We, however, do not aim to lead, or dictate, in this matter—but to suggest, and communicate the views of intelligent men, who see a greater good in this important matter than the interests of a few individuals.

It has been by many recommended that Government should purchase the exclusive right to the magnetic telegraph, thus monopolizing the right of all telegraphic communication; and in view of some advantages to be derived from such an arrangement, we have felt inclined to favor it; but in view of the rapid extension of lines in various directions by individual enterprise, we are led to consider in a more serious light many objections to having the excellent facilities of telegraphic communication controlled by, and dependent on, a party favoring secretary or commissioner. It is true, that a considerable portion of the business of the Post office department is likely to be superseded by the increasing facilities of telegraphing; but then the public will be incomparably better accommodated under a system of competition, than with a government monopoly. For example, supposing the telegraphic system to be under the control of Government, if a branch line were wanted to be extended to a village at a short distance from a main line, a similar obsequious and tedious process must be performed to obtain the privilege that is required now to procure the establishment of a new mail route: and to every such branch line the deputy agent at the junction of the proposed branch with the main line, would be very likely to be opposed. We have already an example in the case of the Washington and Baltimore lines, to show that under the special control of government, favorites with extravagant salaries will be employed as superintendents, though, perhaps, less capable and attentive than others who might be employed by private companies at one-fourth the amount of salary. Moreover, the nature of the telegraph system is such as to require frequent extra exertion in forwarding messages to individuals, whether a ready and ample compensation was certain or otherwise; and this would be done, under a competition system, in view of the popularity of the line; but under a general government system, the agents or superintendents would feel and act more independently of any consideration but that of their responsibility to the department. And even the general system of management under the acts of Congress, and instruc-

tions from the post-master general, or other head of department, would not, in any probability, be so judicious, and consistent with the productiveness of the establishment and accommodation of the public, as under the control of men of more experience, and consequently better judgment, in practical business operations: for a man must be blind indeed, who cannot see that members of congress—a body composed principally of lawyers—have less knowledge of the ordinary business operations and requirements of the community, than a great majority of their constituents. Another consideration to be examined is, the probability that the government would be inclined to restrict the telegraphic facilities in favor of the post-office and mail operations, by the same rule that our state legislature has cramped and restricted railroad facilities to favor the more expensive and tardy operations of the canals. Government may, if it pleases, impose a tax on such telegraphic communications (or on those uttered verbally) as might be construed to be "mailable matter;" but the effect of such an act would be in a great measure proportionate to public sentiment with regard to the constitutionality thereof; but intelligence, like water, will constantly tend to flow in its most convenient channels.

#### Eastern Railroad.

##### Twelfth Annual Report.

We have received a copy of the twelfth annual report of the directors of this company. It shows a fair increase of business, both in passengers and tonnage. This company, like many others, is building, and aiding others to build branches to the adjoining towns, by which the business of the main stem will be materially increased. The number of way passengers on this road is very great. The number stopping at, and short of, Salem, probably exceeds three hundred thousand.

In laying the second track they have adopted the longitudinal sill, prepared after Kyan's process, by which, and Herron's experiments, we shall, in due time, be able to judge of its utility, or advantage, in the superstructure of railroads.

#### Report of the directors to the stockholders of the Eastern railroad, at their twelfth annual meeting, July 12, 1847.

GENTLEMEN: The directors beg leave to submit the following

##### REPORT.

During the past year a revision and new classification of all the accounts and expenditures of the company, for the construction and equipment of the road, have been made with all practicable precision, the results of which, in a condensed form, and brought up to the 30th ult., are given in statement No. 1 herewith submitted, and from which it appears that the actual cost of the road from Boston to the line of the State, (the limits of its charter,) 38 miles, 1063 feet, and of the branch to Marblehead, 3 miles, making a total of 41 miles, 1063 ft., has been \$2,022,378 78—or \$49,085 52 per mile.

The equipment for operating this and the Eastern railroad in New Hampshire, making a total distance of 57 miles 1076 ft., has cost in addition, \$233,577 51—or \$4,063 20 per

mile: making \$53,168 72 per mile; and total outlay, \$2,255,956 59.

Of this amount it will be seen by statement No. 1, that \$53,657 53 was expended during the past 12 months, viz: nearly \$5000 for old claims never adjudicated till this year—\$4500 for alterations in Newbury bridge, for which the company have a strictly equable, though probably an unavailable claim on the State treasury—and upwards of \$45,000 for additional engines and cars required by the increased business of the road.

In addition to the outlay thus stated, of \$2,255,956 59, disbursements have been made on several unfinished accounts, as follows:

**Gloucester Branch.**—The road bed of which is completed, and about six miles of the superstructure laid down. The floods and drought of last year in Maine, and the late period to which the rivers were closed by ice the present spring, have materially delayed the construction of this work. It will be opened this month to Manchester, and as soon thereafter to Gloucester as the rails can be laid. The particulars of the expenditures to the 30th ult., are given in statement No. 2, and amount (including interest to 30th ult.) to \$192,997 17. The length of this road is 13 miles 537 feet. Maximum grade, 45 feet—shortest curvature, 1350 feet—aggregate length of bridge, 3308 feet.

**Salisbury Branch.**—The grading is completed, and the road ready for the rails, which will be laid this season. The outlay therefor is shown by statement No. 2, and amounts (including interest to 30th ult.) to \$26,873 41. Its length is 3 miles, 4112 feet—maximum grade, 41 feet—shortest curve, 1632 feet—aggregate length of bridge, 201 feet.

**Second Track.**—This account, items of which are shown by statement No. 3, comprises all grading and raising of the road bed, the timber and expense of kyanizing it, and all materials and labor used in the construction of a second track, and the renewal of the old track, between Chelsea and Salem, except the iron rails. In doing this, a new system of supporting rails has been adopted, by which they have a continuous bearing on kyanized timber, which while it certainly gives a more easy and agreeable motion to the trains, and consequently diminishes the usual wear and tear, will it is believed, cost much less for repairs, be stronger under equal weights, less liable to accident, less dangerous if the engine or cars be thrown off the track, and far more permanent than the ordinary plan—especially if the process adopted for preserving the timber should prove successful. Its cost is not exactly ascertained, but will not probably be beyond that of the old method, except for the preservation of the wood, which will be about 7½ cents per cubic foot; when completed a portion of the expense will be chargeable to renewal account, and the balance to construction. The outlay to this time has been, per statement No. 3, \$44,666 31.

**East Boston Improvements.**—These consist in the reclaiming from the sea, of about 112,000 square feet, and the erection thereon of an engine house 110 feet square, of a ma-

chine shop, 90 by 82 feet, car houses and repair shops together, 60 by 250, and a freight house, 375 by 45. All these were imperatively required to accommodate the increased machinery in use, and when completed will save both in the amount of labor required, and the shelter which will be afforded to the engines and cars, for the accommodation of which the old buildings were entirely inadequate. The quantity of land over which these are now spread, exceeds 70,000 square feet—all of which will be made available, and the adjoining lands will become more valuable in consequence of the alteration.—The expenditures on this account have been, per statement No. 3, \$68,339 91.

**Salem Depot Improvement.**—The increase of the number of passengers taking and leaving the cars, at this station, have increased from 280,000 when the first accommodations were put in use, to 360,000, the past year, and the number of trains coming into and departing from it, raised from 20 to 60 daily, with the prospect of a large increase from the branches in progress, and the extension of the Essex railroad, will fully justify the policy of erecting the large and solid structures that are now in progress. Every effort will be made to complete them the present season. The expenditure has been, per statement No. 3, \$13,814 30.

**Railroad Iron.**—This account shows the quantity of rails that have already been purchased, appropriated to the new tracks between Salem and Boston—the old iron taken up being for the branches, 1200 tons—cost \$97,640 95; 770 tons are contracted for with H. Gray & Co., 400 with Bailey Bro., Liverpool, and will complete the amount required. When the works for which this and the old rails are intended, are completed, this account will be adjusted by a transfer to them.

The whole expenditure therefore of the construction of the Eastern railroad, its equipment, and unfinished accounts relating to the same, has been to this time, statement No. 4 \$2,700,308 64.

To this is to be added the several property accounts, as follows:

**E. Boston lands,** per statement No. 5, consisting of 180,570 square feet of land, \$45,445 30.

**Boston depot estate,** consisting of the ferry landing, land adjoining the depot, and wharf rights, No. 6, \$91,769 36.

**Sundry estates** per same statement, \$7,350.

**East Boston ferry and lands,** consisting of one half the ferry and 140,000 square feet of land in East Boston, No. 7, \$35,596 22.

No settlement of this account has taken place as yet with the owners of the other half—the East Boston company. Considerable improvements are in contemplation, which will absorb any funds there may be on hand. The treasurer of this company holds \$6000 of them on account, and subject to future settlement.

**Portsmouth bridge stock,** 200 shares, No. 8, \$32,000.

**Notes receivable,** No. 9, \$28,530 50.

**Mem. check, P.R. & P.R.R. Co.,** \$20,661 03

This has been received for the company's

interest in the steamer Hugtress and wharf at Hallowell—transferred.

**Sundry accounts,** per treasurer's trial balance, No. 10, \$6,386 73.

**Loan to Essex railroad company,** No. 11, \$66,110 17.

**Due from Horace Gray & Co.,** on account, No. 12, \$16,025 47.

**Income July and December, 1847,** for stock on hand, No. 13, \$23,990 48.

**Balance of freight and rents not received** on 30th June, \$15,046 03.

**Total,** \$3,080,129 03

The receipts to meet the above expenditures have been—

**Capital stock issued,** 22,500

shares, \$100, \$2,250,000 00

**State scrip,** 500,000 00

**Sinking fund,** per statement 14, 84,134 34

**Renewal fund,** " 20,987 17

**Income account surplus,** " 16, 30,283 03

**Notes payable,** " 15, 69,255 00

**Bank balances due,** " 15, 11,436 86

**Sundry accounts,** " 15, 13,732 63

**Dividend,** " 16, 109,300 00

\$3,088,129 03

**Teaming Establishment**—was instituted in September, 1844, and has now been in operation 34 months: its object was to facilitate the transportation of merchandize between the city and the East Boston depot, at as moderate rates of truckage as charged to other depots in Boston. This object has been accomplished, and the result now is, notwithstanding, or rather, perhaps, in consequence of the abused ferry, a net profit, as per statement No. 17, \$6,851 39. These accounts have never been, and are not now, included in those of the Eastern railroad company, but the above sum is invested in teams and furniture at a low valuation, and in a loan to the Eastern railroad company, and in cash.

**Eastern railroad in New Hampshire,** cost \$403,573 68. Number of shares, 4825.

The following synopsis of the past as compared with the preceding year, shows as favorable results as could be expected.

	Year ending June 30, 1846.	June 30, 1847.
Receipts from passengers.....	\$296,161 83	\$323,960 02
" merchandize.....	39,330 66	46,345 15
" mails.....	2,305 25	8,945 13
" incidentals.....	3,586 94	463 29
<b>Totals.....</b>	<b>348,384 68</b>	<b>379,713 59</b>
Expenses.....	123,614 58	127,579 57
<b>Balance.....</b>	<b>224,770 10</b>	<b>252,134 02</b>
Rents, etc.....	5,425 08	8,690 10
Interest and profit and loss.....	6,743 36	8,077 23
<b>Total.....</b>	<b>236,938 54</b>	<b>268,891 35</b>
Interest paid State, etc.....	25,000 00	29,035 33
<b>Balance.....</b>	<b>211,938 54</b>	<b>239,856 02</b>
Dividends.....	182,600 00	300,600 00
<b>Balance.....</b>	<b>29,338 54</b>	<b>39,256 02</b>
Renewal fund.....	12,000 00	12,000 00
<b>Balance.....</b>	<b>17,338 54</b>	<b>27,256 02</b>
Sinking fund.....	16,746 36	10,000 00
<b>Surplus.....</b>	<b>595 18</b>	<b>17,256 02</b>
Surplus, June 30, 1846.....	13,027 01	
1847.....	30,388 03	

No. of passengers carried.....	735,452	780,774
No. tons merchandize.....	34,215	40,499
No. miles run by passenger and freight trains.....	219,054	236,700
Expenses per mile, do.....	56,504	53,899
No. passengers carried one mile.....	13,281,028	
No. tons merchandize carried one mile.....	1,156,229	

Notwithstanding the dividend on 4500 new shares, amounting to \$18,000, is deducted from the earnings of the last six months—more than was taken from those of the corresponding six months in 1846, there remains a surplus of \$1,658 90, against a deficiency last year of \$10,449 93, or a difference in favor of this year of \$12,108 92.

The result of the whole year 1846-7, as compared with that of 1845-6, shows an increase of income from the earnings of the road of \$31,328 91. Increase of expenses, \$3,964 99, or a net increase of \$27,363 92.

When the Gloucester and Salisbury branches shall be put in operation, and the Essex railroad be extended to its proposed terminus, still more favorable results may be anticipated. To accommodate this actual and expected increase of business, the considerable addition to the equipment, before alluded to, has been made.

For mutual and public convenience an arrangement has been made with the Essex railroad company, for working that road, charging therefore the actual average expense per mile of both. This has been done since that road was opened January 19, 1847, and trains have been run thereon to the 30th ult., 4670 miles, for which this company has charged at the rate of 50 5975 cents—in all 2,363 91—having carried 30,777 passengers. Between 60 and 70,000 dollars of the sinking fund has under the terms of the same agreement been loaned to this company.

During the past year, one person attempting to get into the cars, fell and lost an arm, two children have been struck by the engine on the road, one of whom was unfortunately killed; three men attached to the gravel train were wounded while sitting on the side of cars in passing some other cars, on a side track: but of the passengers, nearly 800,000 carried in the trains, not one has received the slightest injury.

By an act of the legislature passed the last session, this company were authorized in conjunction with the Boston and Maine railroad company, to lease or otherwise contract for the use of the Portland, Saco and Portsmouth railroad, and this act having been accepted by the stockholders of both companies, an indenture by which that road is to be operated and kept in repair by them, and the income over 6 per cent. to the stockholders, has been executed, and is mutually satisfactory and advantageous.

Another act was passed by the last legislature, authorizing this company to subscribe to the stock of the Grand Junction railroad and depot, and has been also accepted. Negotiations are on foot in relation to this matter, and it will no doubt be determined at a very early day.

To meet the expense of the company for increase of equipment, branches, etc., a new issue of stock, to the extent of 4500 shares,



was made in September last, and the whole taken, mostly by stockholders, at par. These shares were entitled to interest to the 31st of December, and to the regular dividends thereafter, and payments on them have been made in conformity.

Since our last annual meeting, it has been our misfortune to lose one of our board of directors, AMOS BINNEY, Esq., by death. To the strong discriminating mind, the intelligence and practical good sense of this gentleman, his associates have been indebted for much assistance and the company for many valuable services. To supply his place, there will be offered for the consideration of the stockholders, the name of a gentleman, whose high standing in the community, whose acknowledged probity and intimate acquaintance with and uniform advocacy of the interests of this corporation, as well as the relation he bears to it, as president of the Eastern railroad in New Hampshire, eminently qualify him for the position proposed.

The directors are not aware of any other than the ordinary business of the annual meeting, to which to call the attention of the stockholders, and trust that the preceding statements of the conduct and income of the road, will prove satisfactory.

All which is respectfully submitted.

D. A. NEAL, President.

#### Great Britain Steamer.

We find the following remarks by the Editor of the London Mechanics' Magazine, in the number for August 28th, in relation to "the plan of the Messrs. Bremner" for getting this noble ship out of her birth in Dundrum Bay. At the time of writing the article it seems that the object had not been accomplished, and there was some doubt as to the success of the plan adopted. Yet they were successful, and the ship was removed safely to Liverpool, or rather Birkenhead, for repairs.

The description here given of the mode of operation, may be interesting to those of our readers who do not see the English Magazines, therefore we give them entire—including, also, those relating to the 'Gorgon Steamer of 1100 tons burthen, stranded in Montevideo Bay in 1814."

For several months past the public attention has been kept alive to the fate of the unfortunate *Great Britain*, by paragraph after paragraph describing the progress of certain operations for raising and floating her, which were going on under the direction of Messrs. James and Alexander Bremner, C. E. (all former plans having failed), and which it was confidently predicted would result in the most complete success. All was said to be ready for lifting her on the 13th of July last; and on that day the attempt was made, but failed. On the 14th instant a second attempt was made, and that also has failed. We may now, therefore, be excused for inquiring into the causes of these failures, in order that it may be seen whether the means adopted have been the most judicious that could have been used for the purpose; and whether there really is any such difficulty in the case, as thus, apparently, to set all the engineering skill of the country at defiance.

The plan of the Messrs. Bremner, as de-

scribed by themselves in a communication to the *Illustrated London News* of the 21st August, (which contains some excellent engravings, showing the several stages of these operations,) was as follows:

"First, twenty large boxes were made, to contain upwards of thirty tons of sand each. Ten boxes were suspended on each side by strong chains, which went over pulleys in the upper part of large vertical baulks of timber, the same chain passing through pulleys attached to the side of the ship, thus doubling the weight of sand in the boxes, less the friction; and, it should be added, those boxes in the middle of the ship, opposite the engines, had four powers to each, to prevent straining the ship at that part. Very powerful levers were put to the fore-end, capable of lifting about 190 tons; and, along the sides opposite the large timbers, formerly on the ship, were also placed levers, capable of lifting about 200 tons each. In addition to the lifting power of boxes and levers, was applied screw power, capable of lifting 100 tons. These screws were placed near the hawse-holes, on a stout frame of timber, which was on immense end-wood supports. The levers on the sea side of the ship were ballasted with chains, anchors, and parts of the engine: as also were those on the fore part. The sea had, therefore, little surface to strike against; while the levers on the land side of the ship were ballasted by a large iron boat filled with sand."

From this description it will be seen that, with the exception of the 100 tons of screw power employed, Messrs. Bremner relied on raising the vessel by dint of mere strength or weight alone. How they calculated the weight to be raised, or resistance to be overcome, or whether they made any calculation at all, is not stated; this only appears, that, by suspending weights here, and by suspending weights there, amounting in all to about 2000 tons, they expected to start the vessel from her sandy bed. Anything in the way of engineering less skilful or scientific than this, it would be difficult to imagine. However, according to the Messrs. Bremner, the mechanical force they employed—whether hit upon by chance or calculation—was actually sufficient for the purpose. We quote again their own words:

"When the lifting power was about complete, on the 13th of July (spring tide), it was thought advisable, as the good weather was passing, to make the first attempt: when, to the surprise of all on board, the ship lifted so rapidly, that the valves had to be opened to prevent her going up farther. (!!!) The first trial was set about too prematurely, as sufficient preparations had not been made to retain the ship at the required height; consequently, on the receding of the tide, several of the boxes and baulks were injured."

The thing was done, only it had to be undone! Trying to raise her, she rose so rapidly that they were obliged to open the valves, and let in the water to sink her again! So swift was the ascent to the surface of the water, that it was necessary to water-log her, to "prevent her going up any farther" (!!!)

(How much farther did they think she might have gone?) No "sufficient preparations" had been made "to retain the ship at the required height," which means, we presume, to keep her afloat; and to provide, therefore, against her sinking again, *sua sponte*, it was thought well to sink her beforehand, *a la noyade Francaise!*

Rendered into plain English, and real matter of fact, we take the statement which we have quoted to mean simply this: The engineers had thought only of what weight against weight would achieve, and taken no heed of what was to become of the lighter weight after it was raised; the vessel was started from her bed, but filled almost immediately with water, through holes in her bottom, and consequently sank again to her original position; while the weights, reeling under the great effort they had made, were some upset, and some injured, and all lowered into the mud. Another notable specimen this of engineering! The rudest of heavers could not have managed worse.

To provide against a like disaster on the second attempt, the following arrangements were made:

"Some thousands of small piles were driven, reaching from the surface of the sand to that of the rock; and on these piles were laid foundations for vertical supports, which, by an ingenious contrivance, were made self-acting, so that as the ship rose the shores placed (were intended to place?) themselves. In addition to these shores, were many immense wedges, hauled in at the fore-keel and bilges; stone were also put under her with long shutes from the deck."

The second attempt, however, (August 14,) proved so much worse than the first, that the efficiency of these arrangements was not put to the test. The vessel this time was not moved at all. The tide did not rise high enough. "No tide," says Captain Claxton, "only 6 feet 6; we want 13 feet 6; and tide-table gave it." They (Messrs. Bremner) have been beat this time by the elements.

That the same weights which lifted the vessel "so rapidly" on the first occasion should not have been able to move her at all on the second, is, it must be confessed, somewhat strange—the "elements" notwithstanding; and the only way in which we can account for it (without impeaching the veracity of the account given of the first experiment, which we see no reason for doing) is, that the vessel must, between the two attempts have imbedded herself in the sand more deeply than ever.

A third attempt to raise the vessel is, it seems, to be made in the course of a few days, when "very high spring tides" are anticipated.

We will not go so far as to say that there is no likelihood of success; for as long as it cannot be gained that a weight of 10 lbs. will raise one of 5, there is no doubt that the thing can be done in the way Messrs. Bremner propose. But this we will unhesitatingly affirm, that if she ever is raised, it will not be by means of any ingenuity, skill, or sci-

ence which these gentlemen have brought to bear on the task. A vulgar reliance on brute force is the broad feature of all their contrivances; they rely on it to raise the vessel, and they rely on it to keep it up when raised. Of the aids which hydrostatics and pneumatics offer for the purpose, they are manifestly in most deplorable ignorance.

The owners of the *Great Britain* have spoken somewhat sneeringly on several occasions of the number of schemes for saving her with which they have been "pestered." We once thought them ignorantly supercilious on the matter; but if we may take it for granted, that the plan of Messrs. Bremner was the best of the lot, we must needs confess that they judged shrewdly enough. Was it really, however, the best? Or did they prefer it simply because it was more in conformity than any other with their own notion of the mechanical powers? We should not be greatly surprised if the latter supposition were the truer one of the two.

We know nothing of any of the schemes submitted to the Directors of the Great Western Company, and do not now speak disparagingly of the operations of Messrs. Bremner, with the view of favoring any of them. In what we have to say farther on the subject we shall confine ourselves to plans which were prepared and put in successful practice long before the *Great Britain* was wrecked in Dundrum Bay; and rest content with asking in conclusion, why the same plans should not have been followed in the case of the *Great Britain*, and should not now (supposing attempt the third fail) be had recourse to?

In 1828, Mr. John Milne, of Edinburgh, published a work entitled "Plans for the Floating of Stranded Vessels, and for Raising those that have Foundered, with an Improved Method of carrying Vessels over Banks and Shallow Water." An account of this work was given in the *Mechanics Magazine*, vol. xx., p. 835. Mr. Milne proposes to employ in various ways the power of vessels, or buoys, filled with air (*not sand*) to raise stranded vessels:

"While it is yet low water, let a number of these buoys (or light leather bags) in a perfectly collapsed state be stowed away about the cabin of the wreck, in its hold and steerage, and let them also be confined down near to the bottom of the shattered ship, by cross and upright spars, butting against the under side of its deck; and let an injection pipe communicate with the blowing-pump within the steam-vessel (salvage vessel employed for the occasion,) which may, during the operation of filling these buoys, be at any convenient distance from the wreck. Let the blow-pipe now begin to act, by which the buoys will soon be filled, and the wreck will float off when the tide has risen to a sufficient height; for the buoyant effect of the volume of air placed within these envelopes is equal to the weight of a mass of water of the same magnitude; and since the weight of a cubic foot of sea water is a little more than 64 pounds avoirdupois, it does not seem to require the injection of many cubic

feet of air to be equal to the weight of even a large wreck while in water, which, being afloat, may now be towed into port by the steam-vessel; and when on its passage, if it were found that the air escaped from its envelopes, they might be kept perfectly full by the air-pump continuing to discharge a sufficient supply into them by the communicating pipe already mentioned."

The reader will be instantly struck by this remarkable feature of the plan of Mr. Milne, that the same power which is employed to raise the vessel serves afterwards to *keep it afloat*, and to carry into port; while the plan of Messrs. Bremner provides but for raising the vessel and leaving it where it was—liberated only from its hold on the shore.

In 1833, Dr. John Hancock recalled attention to this mode of raising vessels, in a communication to the *Mechanics Magazine*, vol. xx., p. 170, and strongly urged its general adoption.

Not many years later we heard of some thing like it having been actually adopted in several instances with great success by Mr. Bush, the ingenious, enterprising, but most ill-used constructor of the "Light for All Nations." The first case was that of the *Nimble* cutter which was wrecked in October, 1837, on the Corton sands; and another, that of the *Blucher*, which sunk in three fathoms of water off the Naze; both of which vessels Mr. Bush succeeded in raising and carrying into port. Mr. Bush's plans differed from Mr. Milne's chiefly in this; that he made use of empty casks and hollow cones, instead of flexible air-buoys, and had, consequently, all that trouble to encounter which it was Mr. Milne's object to obviate, namely, the great trouble inseparable from every attempt to attach a number of rigid hollow bodies to a vessel under water.

We would not have our reader to suppose, from what we have said, that we mean to represent the employment of air-vessels for raising sunken vessels as dating from the publication of Mr. Milne's book. The fact is not so. Empty casks had been employed, in one way or another for the purpose, time out of mind; and camels (the invention of the Dutch), which differ but in bulk and shape from casks, had also been known for a century and more. Mr. Milne himself states that he was well aware of these contrivances, and aimed only at improving upon them. What he did was to suggest the employment of flexible, instead of rigid air-vessels; the attachment of them, in a collapsed state, to the vessel, both inside and outside; and the inflation of them with air after they are so attached. Most valuable suggestions these were, and, according to the best of our knowledge, perfectly original.

The progress of the arts since the date of Mr. Milne's book, has tended greatly to enhance the value of his plans. Caoutchouc was then unknown, except as a material for rubbing out lead-pencil marks, (*unde derivatur INDIA-RUBBER, Angl., LEADEATER, Scott.*); and well greased leather was the best material Mr. Milne could think of for making his flexible bags. But now that caoutchouc has

come to be employed so extensively in the sheet state, and in a state of solution, to the manufacture of air and waterproof elastic fabrics,—now that air-balls, and air-cushions, and air-beds made of, or with the aid of caoutchouc, are become articles in common use,—the ship salvor has at his command a material incomparably superior to leather, and one with the aid of which he may carry out Mr. Milne's views with a facility far beyond what the inventor himself could ever have anticipated. Caoutchouc bags contract and expand, which leather bags do not. Caoutchouc bags may be made perfectly impermeable to both water and air, which leathern never can. And caoutchouc bags may be stowed away in a tenth of the space which would be required for the others. A very small cabin would suffice to hold as many caoutchouc bags as would raise the biggest ship that ever floated.

The Americans have in this, as in not a few other instances, been quicker than the English to appreciate the advantages of employing caoutchouc bags in the salvage of ships. We quote the following notice from a recent number of the *Baltimore Sun*:

#### "Marine Camels."

"We on Monday witnessed an experiment made at the U. S. receiving ship Ontario, of the power of the marine camels, the invention of Captain Taylor. The camels are simply India-rubber canvas bags, made so as to retain all the air which may be pumped into them. They may be placed under any vessel which it may be desired to raise out of the water, and in proportion to the amount of air forced into them, the ship will rise. The sloop of war under which the camels had been placed, was raised three feet in less than one hour and a half; the camels, if we may use the expression, being fed by a small air-pump, worked by but one set of hands. It was evident, from what was done, that she might have been raised, with sufficient power, we may say, almost out of the water. The design of this invention is to carry ships over bars, or to relieve vessels which may ground on a bar."

Why should not the directors of the Great Western Company (the owners of the *Great Britain*) go and do likewise? If Messrs. Bremner succeed in their third attempt—which we have admitted to be a *possible case*—there will be no occasion to call in other aid; but if they fail once more, as is likely enough, the directors will be inexcusable if they do not have recourse to the well-tested and infallible means which we have here brought under their notice.

Before laying aside our pen, it may not be out of place to add a word or two with respect to another great wreckage case which, two years ago, excited nearly as much sensation as that of the *Great Western*. We refer to the case of H. M. steamer *Gorgon*, of 1100 tons burthen, Captain Hotham, commander, which was stranded in the Bay of Monte Video, May 10th, 1844; and after upwards of five months of incredible exertion on the part of her officers and crew, restored, nearly uninjured, to her native ele-



ment. A "Narrative of the Recovery" of this vessel has been published by Commander Astley Cooper Key, one of the lieutenants of the *Gorgon* at the time of the disaster, which, though written more particularly for the information of members of the author's own profession, is deserving an attentive perusal by all who are, or may be, in any way concerned in the salvage of vessels. The fertility of invention evinced by Captain Hotham on the occasion, the ingenuity and frequent originality of his plans, the sagacity with which difficulties were foreseen and provided against, the judgment with which orders were given and cheerfulness with which obeyed, and the unflinching energy and perseverance displayed by all concerned, from first to last, have found in Commander Key a faithful and most agreeable chronicler. Although we cannot cite the *Gorgon* as an instance of a vessel saved by this sort of agency we have been recommending (for she was saved chiefly by shore purchases and screws), yet we can cite both her commander and the writer of the "Narrative," as bearing unqualified testimony to the superiority of that agency over all others. Captain Hotham did, in fact, have recourse to the use of camels, and derived great assistance from them; but, owing to an accident, described in the following interesting extracts, they were put *hors de combat* before the ultimate rescue of the vessel by other means:

"This day's experience (22d August) was bitter; it showed clearly that the general means adopted were inadequate to the accomplishment of the undertaking. The camels were our only resource. The advantage of the camel in reducing the draught of water, especially in a case like the present, is so obvious, that the inquiry would naturally suggest itself, why were they not earlier thought of, and brought into use? This is easily answered; in the first place, economy required that the means which were considered adequate, should be *proved* not to be so, before others were resorted to; and secondly, the excavations in the dock were only now sufficiently advanced to admit them."

"On the 16th of September, at about mid-day, a sudden squall from the southward caused the water to rush into the bay with such force as to raise it three feet in a few minutes, bringing it therefore on a level with the top of the camels. When the camels were totally immersed, and were exerting their whole power, they had the immediate effect of bringing the ship upright."

"We had been assured that after October, all hope of any extraordinary rise of tide was at an end; from the commencement of that month, therefore, every indication of a southerly gale was watched with increased anxiety; we considered ourselves in every way prepared, our only daily employment consisted in the continued excavation of the dock and channel, which would admit of no cessation. At any ordinary rise of water, to the ten-foot mark, for instance, the ship was

evidently quite alive abaft, the slightest swell setting into the bay was sufficient to cause the immense power of the camels to be immediately perceived, by the motion they communicated to the ship; if either of them on one side sprung a leak, which occurred once or twice, the ship instantly lifted over two or three degrees to that side, and again righted when the camel was repaired and pumped out dry."

"Before relating the account of our final happy release, let us pause, to remind the reader what power was at the present period applied, after all the changes and alterations had taken place, and which have been so confusedly recounted in the preceding pages. And, first, as to the lifting power, or that applied to lessen the ship's draught of water: The amount of this is easily ascertained; but the actual effect, that is to say, the exact reduction, is not so simple in the attainment: the investigation would involve more delicate and abstruse calculation than is consistent with the character of the publication. The form of the ships bottom, her exact displacement, and other data, would also be necessary, before any result, in the slightest degree approximating the truth, could be obtained. Let us therefore be content with the mere amount of power, which may be tabulated thus:

Port side. Tons.	Starboard. Tons.	Astern. Tons.
Camel (1) 56	Camel (2) 64	Caisson 5
" (3) 63	" (4) 49	
" (5) 76	" (6) 66	
Boilers.... 10	Tanks.... 14	
16 Pipes.... 8	10 Pipes.... 5	
213	198	

#### Summary.

	Tons.
Port side.....	213
Starboard side.....	198
Astern.....	57
Total.....	468

Showing a total of 468 tons directly applied to reduce the ship's draught; and, from the description of power, every ton is clearly and inevitably available. There is no loss from friction, or bad material; no doubt as to the proper force being exerted, as is the case with animal power; the machines are in themselves helpless; they are forced to put forth their whole strength; and, as long as they are entirely immersed, there can be no relaxation or diminution to their exertions."

"The ship had been dragged her whole length when No. (1) camel slipped from its shores, and rising, the surf struck it heavily against the ship's side, by which it was stove; soon the whole of the camels followed its bad example; this was grievous indeed, but the ship was now entering the mud, and continued to move, though more heavily than before."

"The reason of the defection of the camels was very evident. The gripes, by which they were boused close to the ship's side, were made fast below the camels to the swifter; to this, at the stern post, was also secured the standing parts of the runners on

the heaving off cables; therefore, when these carried away, and were unrove, the swifter, of course, slackened: this gave the camels a little play, which was increased rapidly by the swell, and finally, so as to trip up the shores; they were then completely adrift."

"The ship was still imbedded four feet in the mud, which was now considerably softer than that nearer to the sand. But as we now were assured that she could be dragged astern by main strength, and at a little more than an ordinary tide, the intention of re-securing the camels and 'caisson' was, of course, abandoned."

The engines of the *Gorgon* were employed as the principal moving power in working the purchases and screws, and the author of the "Narrative" claims for Captain Hotham the merit of having been the first to turn to so useful an account what had previously been regarded as one of the greatest obstacles to the salvage of a vessel under such circumstances:

"I believe it may be with propriety assumed that a very general impression has prevailed in the navy, that one of the great difficulties attendant on officers commanding steamers would be, getting them afloat should any disaster throw them on shore. The necessity of removing the engines was always admitted; and the minds of naval men had been turned to simplify a process considered as a *sine qua non*. It was reserved for the *Gorgon*, a vessel with engines of 300 tons weight, to prove to the world that an officer should consider well his position, before he adopted too hastily a plan that would inevitably render his vessel at once unserviceable. As a matter of course, the advantage to be gained by their removal struck every one; but this was more than counterbalanced by the difficulties attending the operation, the expense to be incurred, and the probable loss or injury of many small parts, and more than all, by the declaration of the engineers that the resources at their command were not sufficient for their restoration and re-erection. Weighing well the advantages and disadvantages held out by either course, it was wisely determined to retain them, and employ them as the principal moving power; but, as is, and ever will be the case, when any new idea is started, public opinion declared against it, the folly and madness of the plan was in the mouths of every body; still Captain Hotham remained firm, in defiance of the entreaties of his friends, and the ill-repressed hints of other self-constituted critics. His determination was that the engines should remain on board, and be used as the principal power for transporting the ship."

We have quoted the preceding passage with a special view to its bearing on the case of the *Great Britain*. Should recourse be had to the use of air bags, a considerable power will be required to inflate them; and Captain Hotham's example shows that none better can be employed than that which the vessel's own engines afford.

## ASSOCIATION OF GEOLOGISTS AND NATURALISTS.

The 8th annual meeting of this association will take place at Bos on on the 20th inst. It will be attended by the most learned naturalists and geologists from every quarter of the Union, while some bright stars from the continent of Europe are expected to shed their light upon the meeting. Much and valuable information will be elicited. Dr. C. T. Jackson, who presided at the last annual meeting in New York, is, *ex officio*, the chairman, by the death of the lamented Dr. Amos Binney, of Boston, who was chosen by the last meeting, and has since died, while sojourning in the city of Boston. By the death of Dr. Binney the association has lost a most valuable and munificent member. He was a good naturalist, and took much interest in its success. It is hoped that a proper tribute of respect will be paid by the association to his memory. The time of holding the annual meeting renders it impossible to insure the attendance of so large a number of practical geologists and miners as would be desirable, for they are mostly engaged at this season of the year in their researches and pursuits in the field.—*Mining Jour.*

## FOREIGN LETTERS PATENT FOR INVENTIONS.

The following statement as to the cost of taking out patents in European countries may be useful to some of our readers. It would be still more so, if it explained the mode of proceeding in the application.

The regulations attending the taking out letters patent are so generally but imperfectly known, that we have been induced to glean together the following particulars as to those regulations in the various European countries with which the United States government has diplomatic relations. In England, any person, native or foreigner, may obtain letters patent; but, in case of a foreigner living abroad, the patent must be taken out in his behalf by some person resident within the United Kingdom, as "a communication from a foreigner residing abroad."

No British subject can patent in his name an invention which is the communication of another British subject, unless the inventor is abroad or deceased. For England, Scotland and Ireland, separate patents are required.—The term for which a patent is granted is 14 years. The average cost—England, £110; Scotland, £75; Ireland, £125; if two names there is an extra expense of about £17 10s., and for every additional name £12. When two parties appear to have hit on the same invention independently, it is the practice either to allow a patent to neither, or, if the parties can arrange matters between themselves, to allow a patent to be taken in their joint benefit. The cost of entering a caveat for England, Scotland and Ireland, is one guinea per annum each. Patents may also be obtained in most of the European States, but they should not be applied for until the one for England has been secured. In taking out a patent in the United States, the party has the exclusive right of doing so for six months after making his invention public in England. The following is the average cost of foreign patents:—Austrian and Italian

States, 1 to 15 years—5 years, £25; 10 years, £45; 15 years, £75. Bavaria, from 2 to 15 years—5 years, £12; 10 years, £15; 15 do., £20. In Belgium and Holland, patents may be secured without any tax for 2 years; thus giving ample time to prove the invention. If successful, the terms are then, 5 years, £23; 10 years, £23; 15 years, £50. If after two years he abandons it, there is no further tax or liability. By the new law in France, which came into operation October 8, 1844, a patent may be obtained in that country for 15 years, for £4 per annum, which may be discontinued at any time; if for 5 years certain, £21; 10 years, £37; 15 years, £70.—Prussia, 5, 6 or 8 years, £15. Russia, 1 to 6 years, £20 to £30 Spain, 5 years, £50.

In this country, patents are granted for 14 years—fee to the government, £30.

## AMERICAN RAILROAD IRON.

Rolling mills for railroad iron will soon be found in operation. The following paragraph speaks of one "in the woods," where a few years since only bears and wolves had their dens—but where now is found a busy population of several hundreds. We are now only just commencing our career in this branch of business. Ten years more and we shall be fairly engaged in it. The writer in the *Mining Journal* says—

The New York and Erie railroad company have contracted with the Lackawanna works Providence, Luzerne county, Pennsylvania, for 12,000 tons of rails, with which to lay about 77 miles of road, for \$800,000. The iron manufactured by this company is said to be far better than the imported—indeed the best that can be obtained in this country. Whether this be true we are unable to determine. These works are situated where, according to a writer who has visited them, "five years since there was nothing but an impenetrable ravine, in which bears had their dens, and disputed the right of territory with the inhabitants of the valley below."

On the side of this mountain glen, overlooking the beautiful and fertile valley of Lackawanna, which forms a part of the grand Wyoming coal basin, is now seen a village of some three or four hundred inhabitants, some fifty or sixty houses, including a church, stores, splendid mansions, all painted white, and presenting the appearance not only of "a city in the country," but of a city in the wilderness.

The Erie railroad is completed to Otisville, in Orange county, sixty-two miles from Piermont. In November, a further extension of twelve miles will be made to Port Jervis, on the Delaware. The whole distance to Lake Erie is 450 miles, of which 40 are in Pennsylvania. Between the present terminus and Binghamton, six or seven thousand laborers are employed; and west of that the grading, much of which was completed previous to 1842, is very easy, and will be done long before the iron can be obtained.

By reference to the receipts of this road for the month of August, it will be seen that the amount of business is rapidly increasing.—When completed, Chicago will be only two and a half days distant from New York; and when the railroad route shall be continuous,

via Toledo, the distance can be made in two days.

Reeves, Buck & Co., of the extensive iron works at Phoenixville, Chester county, Pa., have just contracted to furnish the iron required for the eastern section of the Pennsylvania Central railroad. The price stipulated for the iron, delivered on the road, is \$60 50 per ton. The Phoenix company is one of the most wealthy and enterprising in the country, having successfully withstood all the fluctuations of trade for many years.

## UPPER CANADA MINING COMPANY.

At a meeting of the American shareholders of this company, held at the Astor House, during the past week, G. S. Tiffany and James B. Stewart, of the Trustees, and H. B. Wilson, secretary of the company, presented reports of the proceedings of the company since its first organization, together with full exploration reports of the several locations already secured by the company, as also assays of the ores, etc., which proved full and very satisfactory to the meeting.

This company is now in full operation. They have secured four locations on Lake Huron, and also four on Lake Superior, of undoubted mineral wealth, on very favorable terms from the Canadian Government. One location in particular on Spanish River, Lake Huron, it is said, will fully compete with the celebrated Bruce Mine, on which the company has at present, under the direction of Col. Dibble, a working party, from which they have every prospect of being able this year to send to market considerable ore. On Lake Superior, they have also, under the direction of Carlos Cobb, Esq., the agent, men and tools, making still further explorations, with directions to establish working parties at once.

The object of the meeting, in addition to laying the above facts before them, was to take incipient steps to organize under their charter, as also to establish an office of transfer in this city.

The fiscal concerns of the company was shown to be very satisfactory. Sufficient funds are in hand to meet all the expenses of the present year, with a surplus to be applied in part on account of any assessment that may be required from the shareholders for the ensuing year, in case they should not be able to realize sufficient from the sale of ores, of which at present they have every prospect. Offers were made, very advantageous to the company, for all the surplus stock created by their charter.

It is the intention of the company, during the fall, to send an agent to Europe, to establish agencies, and make such other arrangements as will place the company, in addition to those already made, on a permanent footing.

The meeting, after passing a vote of thanks to their chairman, Ramsey Crooks, Esq., adjourned, highly gratified with the prospects and success of the company.

We have been promised extracts from the several reports, as also assays of the ores, etc., which we will take an early opportunity of presenting to the public.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**  
Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

2m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 feet in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2300 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FIRES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars.** The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 8 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

**RAILROAD IRON.—400 TONS ENGLISH,**  
60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

**DAVIS, BROOKS & CO.,**  
63 Broad Street, New York.

**FOR SALE—300 TONS (10 MILES) FLAT**  
Bar Rail, in parcels or wholesale—section 3 1/2 inches wide by 1 1/2 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

**L. R. TRIMBLE,**  
Wilmington, Del.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
**SHIPPING & COMMISSION AGENTS**

**PASSENGERS, SPECIE, GOODS, PARCELS, etc.**  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m **ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

41f

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by J. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja15

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

3v1917

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an Improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arrester have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Potomac Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad, W. R. M. Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad, Passaic, N. J.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844. ja15

**PATENT HAMMERED RAILROAD, SHIP AND Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

**JOHN P. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriam, New York; J. H. Whitney, do.; E. J. Kitting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Paterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

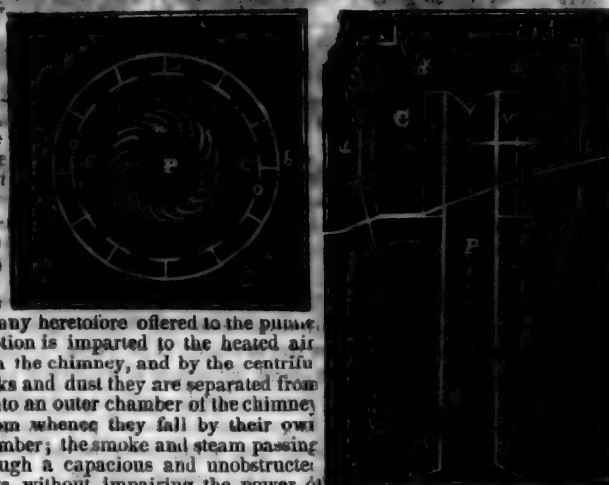
**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; saws, saws, callen-lers; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
445 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Spring-Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 6 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =		
68,696 ft. b.m., at \$10 =	\$686 96	
587 Oak joint blocks 2 ft. x 3 x 15 in. =		
4,403 ft. b.m., at \$13 =	57 21	
13,000 Spikes = 2,250 lbs., at 4½ cts. =	101 25	
Workmanship free of patent charge =	600 00	

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**

Civil Engineer and Patentee.

No. 377 South Tenth St., Philadelphia. 33f

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 11-1 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

25 Platt street, New York.

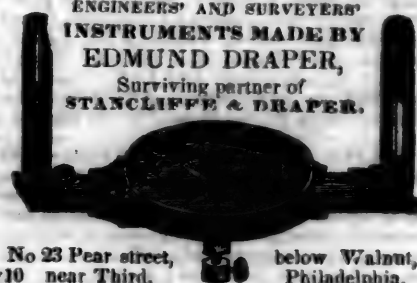
## RAILROAD IRON. MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

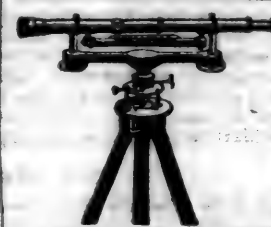
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

**ANDREW MENEELY.**  
West Troy, May 12, 1847. 1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
Vine St. Wharf, Philadelphia. 12f

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,** 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and in the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, &c. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	
11	4	13 5	10	24 -	50	15-16		20
13	3½	9 3	8½	16 -	37	11-16		13½
14	3½	8 11	7½	13 8	17	9-16		10½
15	2½	5 2	6½	9 4	13½	1-2		7½
16	2½	4 3	6	8 8	10½	7-16		7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Elliccott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Elliccott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.  
1y25

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
**G. A. NICOLLS,**  
Reading, Pa.  
ja46

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

**W. H. CALKINS, and Others.**

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co. have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

**WILLIAM ROSS, Sup't of Power.**

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a

For simplicity of construction, economy in cost, lightness of material, and ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 8, 1845.

[Signed,] **G. A. NICOLL,**

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,]

**T. L. SMITH,**

Jersey City, November 4, 1845.

**N. Jersey Railroad and Transp. Co.**

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,]

**JOHN LEACH,**

Jamaica November 12, 1845.

1y19

Sup't Motive Power

**THE SUBSCRIBERS, AGENTS FOR**

the sale of  
Codorus  
Glenoid  
Spring Mill and  
Valley  
Pig Iron.

Have for a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**

59 North Wharves,  
Philadelphia, Pa.  
Jas. 14, 1846. [1y4]

**TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY.** The subscribers have for sale Am. and English bar iron, of all

sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**

e45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10f

**THE SUBSCRIBER IS PREPARED TO**

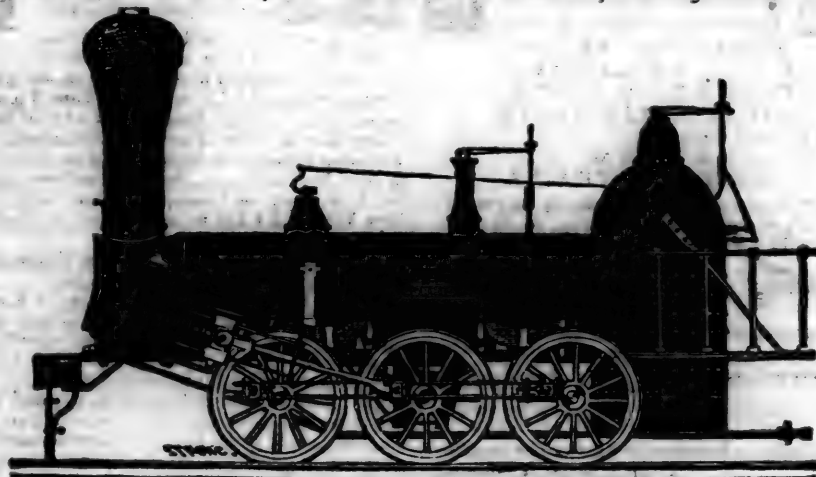
execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, &c., etc.

**PETER COOPER 17 Burling Slip.**  
1y10 New York.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14	"	" × 24 " "
" 3,	14	"	" × 20 " "
" 4,	12	"	" × 20 " "
" 5,	11	"	" × 20 " "
" 6,	10	"	" × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, cash on delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murdoch, Leavitt & Co.

J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.

J. M. L. & W. H. Scovill, Waterbury, Conn.

N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.

William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark N. J.

Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly, 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by

**A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 281f

**A. & G. RALSTON & CO., NO. 4**  
South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 24 x 4 inch Flat Punched Rails, 20 ft. long. 25 " 24 x 4 " Flange Iron Rails. 75 " 1 x 4 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York. 261f

**T**O LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 8 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 11f

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 281f

J. BALL & CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 9 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning train from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon train from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**





**LITTLE MIAMI RAILROAD.—OPEN**

**TO SPRINGFIELD**—Distance 84 miles—connecting at Xenia and Springfield with Messrs. Neil, Moore, & Co.'s daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and Lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows: Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon	\$1 00
" " " Xenia	1 50
" " " Springfield	2 00
" " " Columbus	4 00
" " " Sandusky city	8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.  
47d W. H. CLEMENT, Sup't.

**PATERSON RAILROAD**

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9½ o'clock a.m.
11¼ o'clock a.m.	12 1-4 o'clock p.m.
4 o'clock p.m.	5½ o'clock p.m.

On Sunday.

8 o'clock a.m.	9½ o'clock a.m.
4 o'clock p.m.	5½ o'clock p.m.

25d Office 75 Courtlandt St.

**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$13. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. 313y

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York	\$1 50
" Wrightsville	2 00
" Columbia	2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburgh via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m. and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WESTERN RAILROADS, Ga.—These Roads with the Western and Atlantic Railroad**

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	To Atlanta.	To Oothcaloga.
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	\$0 50	\$0 75

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....0 20  
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....0 20 pr. 100lbs. 35  
Crochery, per cubic foot.....0 15 " " 35  
Molasses and Oil, per hhd., (smaller casks in proportion) 9 00 13 50  
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....1 25 1 50  
Ploughs, (small,) and Wheelbarrows.....0 80 1 05  
Salt, per Liverpool Sack.....0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally.....50 cts. per hundred.  
On measurement goods.....13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.  
On brls. dry (except lime).....80 cts. per barrel.  
On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tusculum, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25d



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847:

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50 and	\$3.00
" " Reading,	58	2.25 and	1.90
" " Pottsville	34	1.40 and	1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.

Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3 p.m. No line on Sun-

Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.

m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE,

2d Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston

to Dalton (Cross Plains) in Murray county, Ga.—

39 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	97 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 70
Molasses, per hogshead.	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Station.

F. C. ARMS, Supt. of Transportation.

Augusta, Ga., July 15, 1847.

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 24	1 54		0 41	0 92
and Knoxville & intermediate points.	0 24	1 54	1 10	0 76	0 92
and Chattanooga.				0 61	
Between Augusta and Decatur and intermediate points.	0 24	1 70	1 15	0 86	0 90
and Knoxville & intermediate points.	0 24	1 70	1 20	0 80	0 90
and Chattanooga.				0 65	
Between Charleston or Savannah and Decatur and intermediate points.	0 32	2 30		1 03	1 10
and Knoxville & intermediate points.	0 32	2 30	1 40	1 00	1 10
and Chattanooga.				0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....	
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Buckets, Tubs, Sifters, Brooms and other light articles, per 100 lbs.....	
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casts, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.	
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.....	
Per 100 lbs.....	
Cotton.	

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.; and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.  
Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 30
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as 170 numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Ad.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Ad.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Ad.)

ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (See Ad.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Ad.)

NORRIS, BROTHERS, Philadelphia Pa. (See Ad.)

FRENCH & BAIRD, Philadelphia. (See Ad.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Ad.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	30 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 43

SATURDAY, OCTOBER 23, 1847.

[WHOLE No. 592, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, October 23, 1847.

### Schuylkill Coal Trade.

These reports for last week reached us too late for insertion.

PHILADELPHIA AND READING RAILROAD—Amount of coal transported during the week ending Thursday, October 14, 1847.

	Tons, cwt.
From Port Carbon.....	9,363 13
" Pottsville.....	4,953 11
" Schuylkill Haven.....	12,915 01
" Port Clinton.....	3,838 13

Total for week.....	31,069 18
Previously this year.....	1,049,064 04

Total.....1,080,134 02

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 14, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	5,076 11
Schuylkill Haven.....	1,437 07
Port Clinton.....	00 00

This week.....	6,503 18
Previously.....	169,086 02

Total.....175,590 00

The Lowell and Andover railroad company has been organized. William Livingston, Esq., is president. It is expected the road will be completed by July next.

### Stony Brook Railroad.

This road is designed to open a communication between Lowell and Worcester, (Mass.) and the Connecticut River Valley direct, by connecting at Groton with the Worcester and Nashua road, and the Fitchburgh Railroad.

### Essex Railroad.

This road is designed to connect the Eastern Railroad at Salem with Lawrence.

### To Car and Locomotive Builders.

The attention of Car and Locomotive Builders is called to the following advertisements. "This company has, we understand, changed their policy in this department: having decided to purchase Cars and Locomotives from those engaged in the manufacture, rather than to keep up an establishment of their own for those purposes. We presume, however, that they will continue to do their own repairs mainly on their own premises.

**TO RAILROAD CAR BUILDERS.**—SEALED PROPOSALS will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for the construction of 20 HOUSE CARS, for freight, 2 BAGGAGE CARS and 2 MAIL CARS, according to plans and specifications which will be furnished, and for which proposers are referred to the Master of Machinery, at the Company's Mount Clare Depot, Baltimore, who will be prepared to exhibit them on and after the 25th current.

The House Cars to be delivered by the 1st of February, 1848; the Baggage Cars by the 1st of December, and the Mail Cars by the 15th of December next. BENJ. H. LATROBE, Chief Eng. & Gen. Supt. Baltimore and Ohio Railroad. 2143 Office No. 23 Hanover St., Baltimore.

**TO LOCOMOTIVE ENGINE BUILDERS.** Proposals under seal will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for furnishing the Baltimore & Ohio Railroad Co. with 4 LOCOMOTIVE ENGINES, in conformity with the following specification:—

1. The weight not to exceed 30 tons, of 3940 lbs., and to come as near to that limit as possible.
2. The weight to be uniformly distributed upon all the wheels, when the engine is drawing her heaviest load.
3. The number of wheels to be eight.
4. The diameter of the wheels to be 43 inches.
5. The four intermediate wheels to be without flanges.
6. The boiler to contain not less than 1000 square feet of fire surface, of which there shall be not less than one-fiftieth in the fire box.
7. The tubes of No. 11 fine iron, with not less than  $\frac{1}{4}$  of an inch space between them in the tube sheets.

8. The fire box with the exception of the tube and crown sheets to be of  $\frac{1}{4}$  inch copper.

9. The tube sheets to be  $\frac{1}{4}$  inch thick.

10. The boiler to be of No. 9 iron, of the best quality.

11. The fire box to be not less than 24 inches deep below the cylindrical part of the boiler.

12. The steam to be taken to the cylinder from a separate dome on the fore part of the boiler.

13. The frame, including the pedestals, to be entirely of wrought iron, and the boiler to be connected therewith, so as to allow of contraction and expansion without strain on either.

14. The cylinders to be 22 inches stroke, and not less than 17 inches diameter.

15. The cut off to be effected by a double valve, worked by separate eccentrics.

16. The angle of the cylinder to be not greater than 13 $\frac{1}{2}$  degrees with the horizontal line.

17. The frame and bearings to be inside the wheels and the direction from the cylinder direct with the back pair of intermediate wheels.

18. The centres of the extreme wheels to be not more than 11 $\frac{1}{2}$  feet apart.

19. The wheels to be of cast iron with chilled tire.

20. The means to be provided of varying the power of the exhaust in the blast pipe.

21. The engine to be warranted to do full work with Cumberland or other bituminous coal, in a raw state, as the fuel—and the furnace to be provided with an upper and lower fire door with that view.

22. The smoke stack to be provided with a wire gauze covering.

23. Two safety valves to be placed upon the boiler, each containing not less than 5 square inches of surface and one to be out of the reach of the engine-man.

24. The tender to be upon 8 wheels and constructed upon such plan as shall be furnished by the company, and to carry not less than 3 cords of wood or its equivalent in coal, and 1500 gallons of water.

25. The materials and workmanship to be of the best quality, and the engine to be subjected to a trial of 30 days steady work with freight upon the road, before acceptance by the company.

Payment to be made in cash on the acceptance of the engine. The four engines to be delivered at the company's Mount Clare depot, in Baltimore—the first on the 1st of February, 1848, and the three others on the 1st of March, April and May, ensuing.

The track is 4 feet 8 $\frac{1}{2}$  inches gauge, and the shortest curve of the road is 400 feet radius.

The company to be secured against all patent claims.

Further information will be communicated upon application to the undersigned, at the company's office, No. 23 Hanover street, Baltimore, to which the proposals suitably endorsed will be addressed.

By order of the President and Directors,  
BENJ. H. LATROBE.

Chief Engineer and General Superintendent.  
Baltimore, Sept. 18th, 1847.



### Iron Tubes for Locomotive Boilers, And the Mode of Securing them to the Tube Sheets.

We observe that Professor Johnson, in his able article on the "Use of Anthracite Coal in Locomotives," which we re-published in No. 39, from the August number of the Journal of the Franklin Institute, refers (page 615) to the difficulty of making iron tubes tight in the tube sheet. There has been, we believe, considerable difficulty in this matter—but Mr. Thomas Prosser, of 98 Platt street New York, who manufactures the lap-welded tubes, has an implement which he calls "Segment Tube Cutter," and which is used with great facility, forming, at the same time, a substantial shoulder both on the inside and outside of the tube sheet, or head of the boiler. The operation of this implement is very different from the ordinary mode of rivetting the tubes. It is composed of a ring—eleven segments of a circle of a peculiar shape within the ring, and in the centre of these segments a round tapering mandril, or pin, is driven, acting as a wedge as it is driven in, setting out the segments, and forming an internal and external shoulder, which ensures a tight joint. This is a very simple, yet very ingenious machine, or implement, and ought to be in the hands of every boiler maker who uses iron tubes.

### Pottsville and its Machine Shops.

It would be somewhat difficult for a person resident in, and who left the little village of Pottsville, Schuylkill county, Pa., twenty-five years ago, to recognize the place on his return to it at this time.—In 1824, there were but five houses—now there is probably fifteen hundred—with eight or nine thousand inhabitants, most of whom are directly, or indirectly, connected with the coal business. Among the establishments which attract the attention of strangers, are the machine shops of Messrs. Haywood & Snyder and E. W. McGinniss—which supply the steam engines, and large amount of machinery, for the numerous collieries, and manufacturing establishments of the coal region. These establishments have both grown up from simple blacksmith shops, to the employment of from one to two hundred hands each.

The establishment of Mr. McGinniss is, we believe, employed mainly in the manufacture of engines and machinery for coal operations—but that of Haywood & Snyder who had also an establishment at Danville, on the Susquehanna, has acquired a high reputation for making the machinery for rolling mills. They have not only furnished the machinery and rolls for several of the mills in this State, where railroad iron is made, but also for the large establishment of Mr. Cooper, at Trenton, N. J.; and even for one or two mills in Massachusetts—thus showing conclusively that merit—however modest and retiring—will be discovered and appreciated.

The visitor to this establishment at Pottsville can readily trace, and almost note the years of the growth of this concern; by the various additions and extensions of the buildings. The veritable old smith's shop, we believe, is still standing, in which Benjamin Haywood, the very enterprising and intelligent seignior partner, made horse shoes and horse nails, when he first came to the place. This is a remarkable instance of the success, and prosperity, of honest industry, guided by good judgment, and extraordinary energy of character.

We are not aware how long Mr. Haywood worked by himself—but we find him now connected with two partners, men of character and business habits—Mr. G. W. Snyder, in the department of machinery, and Mr. Benjamin Milnes, in the coal mining

and its various operations. We are told that the aggregate amount of their business, in the two departments—machinery by Haywood & Snyder, and coal by Haywood & Milnes—amounted in 1846 to over seven hundred thousand dollars.

Let the young men of this country, and of other countries too—for Mr. Haywood is a native of England—and especially young mechanics, learn a lesson from this, and recollect that industry, perseverance and integrity may be as successful at the anvil, or in other mechanical pursuits, as in mercantile operations of the learned professions—and twice as useful.

### Kirk's Steam Tilt Hammer.

We saw at the Machine Shop of the Reading Railroad Company, in Reading, a few weeks since, three of these very useful implements in operation. They are constructed in the form of the ordinary, tilt, or trip, hammer—but the power is applied in a very different manner. Instead of the ordinary machinery for such purposes—a large fly wheel, etc.—you see a small cylinder, but little larger, or higher than your hat, placed under the lever, or beam, to which the hammer is attached—in front of the frame in which, or the pivot upon which, the lever operates. In this cylinder moves a piston with a perpendicular motion, giving action to the hammer.

The first, or smaller one, put in operation by Mr. Kirk, was for ordinary purposes, in the blacksmith shop, and so rapid is its movement, and delicate its touch, that it might be used for making horse nails.

The next put in operation, was in the same shop, and is used for working up the immense quantity of scrap iron which has accumulated about the shops of the company, by which means they are now supplied with a large amount of the very best iron for the ordinary work of the shops. After using these hammers for a time, and finding their great utility, the company have erected one of much larger dimensions, with which they are working over, and bringing again into use, their thousands of old axles, and working up, we suppose, their condemned rails.

We should like, right well, to give a more intelligible description of this exceedingly useful machine, as we deem it worthy of being generally known—as to understand it fully, will be to introduce it extensively into use.

When at Boston recently, we saw a model of it at the fair—where it attracted considerable attention. We hope to get a full description of it, with drawings, from Mr. Kirk soon, when we will refer to it again.

### Hinckley & Drury's Locomotive Engines.

It is but a short period, two or three years, since we first met with an engine built by these gentlemen; and never visited their manufactory until March, 1846—when in Boston for a day or two, we had the pleasure of spending an hour in their shop, where we found specimens of excellent work. They were then materially enlarging their workshop, in order to be able to fill the orders which were increasing upon them.

When recently on a visit to Boston, and its vicinity, we saw numerous practical—we might almost say *breathing*, if not living—witness of their industry and skill, for we found their engines in general use. We saw them at work on every New England road that we visited—and on some of the roads we saw no others. It was our intention to have visited their shops again, but a rainy day prevented. We however met one of the gentlemen at the Fair—learned that their orders have fully kept pace with their increased ability to meet them, and that for a

considerable time they have turned out an engine a week—or at the rate of over fifty a year.

We have, in our office, lithographic prints of their six wheel engine with one pair of drivers, and their eight wheel engine with two pair of drivers; but are not aware that any of their engines have found their way south of the Long Island road yet, but understand that they are finding their way westward into Michigan; and they are sure to find their way into Ohio, Indiana and New York, for two reasons—first, because they are equal to any others made in the country, and, secondly, because the Boston people, who are interested in the western roads, know their worth, and seldom neglect their own mechanics, when they have an opportunity to serve them.

### Lowell and Andover Railroad Company.

At the annual meeting of this corporation, held yesterday, says the Lowell Courier of 12th instant, the following Directors were chosen for the ensuing year, viz: William Livingston, Sidney Spalding, Otis Allen, Frederick Parker, Horace Howard, Isaac Farrington and Abner W. Buttrick. Afterwards, at a meeting of the Directors, William Livingston was elected President, Frederick Parker, Clerk, and John A. Knowles, Treasurer. This road, which is twelve miles in length, will be connected with the Boston and Lowell, the Nashua and Lowell, and the Stony Brook Railroad, at Lowell, and with the Boston and Maine and the Essex Railroad, and a branch railroad leading to Lawrence, near the bridge on the road leading from South Andover to Lawrence. The Lowell and Andover Railroad will, it is expected, be completed by the first of July next, when there will be a continuous line of railroad from Portland through this city to Albany, with other railroads extending from it at frequent intervals, and running in various directions.

### Ray's Improved Car Wheel and Truck.

The plans of wheels for railway cars are almost "too numerous to mention;" many of which have been improvements upon those in use before, and some not.

When recently in New York we saw a new plan of wheel, invented by Mr. F. M. Ray, and which may be termed the "cushioned wheel"—as it is cast in two parts, and has a layer of caoutchouc—or prepared india rubber— $\frac{1}{4}$  inch thick, between the parts. The centre part of the wheel, comprising about  $\frac{1}{4}$ ths of its diameter, is cast in one part and without those openings in the hub, usually left to accommodate the shrinkage of the iron. The hub, or bearing upon the axle, is rather longer than usual, and the body of the wheel, of the part between the hub and the outer rim of this part is strengthened by ribs on the inside, extending like spokes from the hub to the rim. The tread of this part is about 24 inches broad, and flat. The remaining part of the wheel, equal to about one-fourth of its diameter, is cast separate upon a *chill*, like other cast-iron wheels—thus forming about as much of the wheel as would be occupied by wood fellows with a wrought tire and flange. The external diameter of the inner part is smaller than the internal diameter of the outer part, or rim of the wheel, by which there is a space, the entire circle, of  $\frac{1}{4}$ th of an inch between the two parts, which is filled by vulcanized india rubber, or caoutchouc, prepared in a certain way; which gives it a most extraordinary tenacity and firmness—yet retaining its elasticity. The two parts are put together and held in place by flanges and bolts—not easily described without drawings—apparently as solid as the wheels in general use,

while this cushion of india rubber serves to prevent the ordinary concussion of the wheels upon the rails; and thus prevents, it is believed by those who have examined them,—at least to a very considerable extent—the wear and tear of machinery and rails. Its effect is said to be much like putting the rubber on the rail and passing the wheel over it,—yet it does not, of course, like that operation, prevent, or at all interfere with, the adhesion of the wheel upon the rail. We are informed that a car, with these wheels, is in use upon the New Jersey Railroad, between Jersey City and New Brunswick, and that it is very much approved of. One of Mr. Ray's Trucks, with these wheels, was exhibited at the Fair in Boston; and we understand that a company has been formed there for the purpose of furnishing wheels of this pattern, and manufacturing cars upon a large scale.

#### Railway Cars and their Improvements.

When at Boston, a short time since, we saw one of the most beautiful and highly finished cars that has fallen under our observation. There were seats for sixty persons—finished in the most tasty manner, with spring seats covered with crimson velvet, of a very rich pattern. It was constructed by Davenport & Bridges, of Cambridgeport, near Boston, upon their most approved truck, hung in such a manner as to have a lateral motion, by which the side thrust, and shock from inequalities of the road, are in a great measure avoided. Cars of this kind are in use, we are told, on the Eastern railroad, where they are very much admired. Indeed the cars of Davenport & Bridges are in high repute wherever used.

#### Great Western, (Canada), and the Buffalo and Mississippi Railroads.

We give place to the following communication, at the request of the writer; that both sides of the question may be heard—and in the hope of directing attention to the important line which must be constructed on the south side of the lake, and from lake Erie to Chicago. That region of country is exceedingly fertile, and becoming too populous to remain long without participating in the advantages of easy, cheap and rapid communication with the seaboard, especially as there is to be a rival line on the north side of the lake, and another through the central portions of Ohio, Indiana and Illinois, to the Mississippi. It does not require the gift of prophecy to foresee these events—indeed, an ordinary share of sagacity, reasoning from past to future, will see that there must be a line of railroad on the south side of lake Erie to Chicago and Galena. This communication calls attention to the south side, or central line, and refers to a report of reconnaissance and surveys, to sustain the position that it is the true line. We shall publish a part of the report referred to, that its comparative merits may be understood.

The communication is as follows, viz:

For the American Railroad Journal.

In the able and interesting report of CHARLES B. STUART, chief engineer of the Great Western (Canada) railway, published in the Journal of the 18th and 25th September, there appears to be several errors of fact and reasoning, the correction of which may benefit some of your readers; and therefore I beg leave, with great respect for the author of that report, to notice some of its more important inaccuracies.

Speaking of a great line of railway westward from the lower end of lake Erie, the report says:— "This westward line cannot be deflected to the south, for lake Erie lies in the way." This is a mistake. A route from Buffalo to pass the south bend of lake Michigan is shorter by the south shore than by the

north shore of lake Erie. The report says of the route through Canada: "I know of no case in this country, or elsewhere, comparable with this, and it is doubtful whether another location, of the same extent, can be found on the continent, so well adapted to the attainment of high velocity and great economy of transportation." There are routes in the west, and very many of them, of equal length, still more favorable for horizontal and straight railroads. That around the south shore of lake Erie need not have half the elevation (360 feet) of the Canada route to overcome, and it would be straight enough for all practical purposes.

"The belt of country extending from the Hudson to the Mississippi, through the centre of New York, Canada West, and Michigan, is the most even and uniform that is to be found in any parallel, between the western waters and the Atlantic coast."

This may be true as applied to the country eastward of Buffalo, but it is quite erroneous respecting the country west. From the western extremity of lake Erie, at Toledo, a route hundreds of miles in length, of easier grades than that of the Central railroad of Michigan, may be found in any direction from west to south. As proof of this assertion, I would refer the enquiring reader to the surveys of a railroad from Toledo to Chicago, and of the Wabash and Erie and the Miami and Erie canals. A straight line from Toledo to St. Louis, 370 miles long, would offer fewer obstacles to the construction of a railroad than any line across the peninsula of Michigan, which has been surveyed.

The report says, that passengers for Detroit will save 196 miles, by taking the north side instead of the south side of lake Erie, even after the completion of the New York and Erie railroad and the eastern line of projected railroad on the south side of the lake. This is an exaggeration of the difference, but that is not important; for any one may see by a glance at the map, that all passengers between the east and the west are not obliged to pass through Detroit. If passengers are bound as far south as the south shore of lake Michigan, they will find the American route, south of lake Erie, the shortest. Mr. Stuart, therefore, claims too much for the Central railroad, when he allows it any portion of the trade or travel of Indiana, Illinois, Wisconsin or Iowa—unless it be obtained across lake Michigan, or in competition with the railroad to Toledo, fifty miles shorter. The navigation of lake Erie, the report represents to be more dangerous than the ocean. Here is room for a difference of opinion. I think the navigation of lake Erie much less dangerous than any portion of our Atlantic coast of the same extent.

The report represents the exports of breadstuffs from lake Erie, in 1846, at upwards of fifteen millions of bushels; of which it says a large proportion, besides that which was shipped at Detroit, "was carried from ports west of Detroit, directly past the two termini of your (Great Western) road." This is a wide error. Detroit furnished 2,438,635 bushels, and the ports of lake Erie, from Monroe to Cleveland, inclusive, sent forward within a fraction of ten millions bushels. The whole quantity of breadstuffs which passed Port Sarnia and Detroit, was considerably within three millions of bushels—being less than was shipped from the single port of Toledo. (See Hunt's Merchants' Magazine, vol. xvi, p. 363, 364, 365.) Of the two and a half millions bushels of breadstuffs which passed out of lake Michigan, not much over a quarter of a million would have passed Sarnia and Sandwich, if a railroad had been in operation from Chicago to the west end of lake Erie at Toledo; supposing the estimate

of the power of railroads to compete with lake navigation, made in this report, to be correct. Upwards of two millions went forward from Chicago, Michigan city and St. Joseph, all of which would be arrested and borne across the peninsula to Toledo, if it could be stopped at Sarnia and Sandwich and carried across to Hamilton by the Great Western railroad. In the former case the saving in distance by railroad is more than two-thirds; in the latter, less than that proportion. A glance at any correct map will show the advantage of proportionate saving of distance to be in favor of the Michigan peninsula, between Michigan city and Toledo, over the route across Canada, from Sandwich and Sarnia to Hamilton. The route for the railroad across the Michigan peninsula is not inferior to that across the peninsula of Canada; for proof of which, I refer to Mr. Baldwin's report, of which a copy was, some months ago, forwarded to the editor of this Journal.

In making the map to exhibit to advantage the Great Western railroad, there are some omissions, to which I beg to call the attention of your readers. The western end of lake Erie has much resemblance to the western extremity of lake Ontario. Both penetrate deeply into the country, and thereby hold commercial sway over the territory for which they offer the nearest ports. Hamilton and Toledo hold these favored positions.

The map purports to give all the public improvements which have any bearing on the work recommended in the report. Yet it neither gives Toledo any place, nor does it vouchsafe a place for the Maumee river, which drains a country half as large as the lower peninsula of Canada West. But, less excusable than these omissions, it leaves out two long lines of navigable canals, centering at the west end of lake Erie, in Toledo, and having a course, now in navigable condition, of 460 miles. Still less excusable is the omission of one hundred miles of railroad now in operation, running nearly parallel with the favorite Central road, and terminating by two branches in Monroe and Toledo. This road extends 70 miles from Monroe to Hillsdale, having a connection at Adrian with a branch 33 miles long to Toledo.

The railroad recommended by the report of Mr. Stuart has great merit. It should be made, for it will pay well. Having merits of its own, it should stand on them, neither claiming what is due to other routes, nor detracting from their just claims.

In the remarks above, I have corrected some of the errors which the report seemed to me to contain. All are liable to mistakes, and none are more willing to be corrected than those who labor for the public good, as engineers of our principal works.

Yours truly, J. W. SCOTT.

#### Iron Trade.

The iron trade has improved since our last advices. Rails are quoted, October 1st, at 29 average, and chairs 25 15s. a 26; Swedish £11 5s.

The monthly report says: Welsh bars are still in good demand, and the price is consequently firm; the same may be said of Staffordshire. Scotch pig declined a little during the latter part of September, owing to several parcels having been thrown on the market by parties desirous of realising, but most of the purchases were for home use. The majority of the men who had struck have returned to their work, at the reduced wages proposed by the masters. A few sales of Swedish have been reported for the American market. In steel nothing doing.

Corren remains steady, with a fair demand. About 240 tons of refined Chilian, in ignots, and a small parcel of slabs, have been recently imported



here: the former is held at 93 $\frac{1}{2}$ , and the latter at 84 $\frac{1}{2}$  per ton.

*Glasgow Pig-Iron Trade, September 30.*—The business done this week in Pig-Iron has been moderate in amount. Commercial embarrassments, and the continued tightness in the money market, have caused a farther decline in prices. Several sales of mixed Nos. have been made at 61s. cash, at which we quote the price to-day.

#### Oregon or Pacific Railroad.

This gigantic project is attracting the attention of able men. Mr. Whitney has succeeded, by his energy and great familiarity with the subject in all its bearings, in arousing an interest in its favor in almost every part of the country. He has travelled many thousand miles, and conferred with many eminent men, and made many addresses to legislative bodies and popular meetings, that his views and wishes, and intentions may be fully known in relation to it; and he has succeeded, by his able argument, his clear and forcible illustrations, and the great desire of the people for such a work, in enlisting thousands in its favor; and the project is now evidently gaining ground with the people.

We have had on our table, for several weeks, an able letter in its favor from the Hon. *Zadock Pratt*, of Green county, New York—which ought to have been published before—taking strong ground in favor of the project. Mr. Pratt has evidently investigated the subject, and he gives many important facts, not generally understood, which may be useful as a matter of reference. We are indebted to the National Intelligencer for a copy of the letter.

#### To the People of the United States.

The subject of a passage across our Continent to the Pacific is exciting the attention of the public mind to such an extent as makes it necessary for every statesman and citizen interested in the welfare, prosperity, and future greatness of our country, to examine the subject, for his own satisfaction at least.

Two routes and modes are proposed to accomplish this great object. One by a canal or railroad, somewhere from Panama to Tehuantepec, in Mexico, between latitude north 7° and 16°; and the other a railroad, from Lake Michigan, through the Rocky Mountains, to Oregon, on the parallel of about 42 $\frac{1}{2}$ °, all on our own territory. I wish first to consider the canal, and see what it would and would not do, and see how we can build it.

The Hon. Mr. Wheaton, late Minister at Berlin, in his very able letter to the Secretary of War, shows that he has studied the subject, and made himself acquainted with all the lights then before the world; and even he leaves all in doubt and conjecture. If it can be done at all, it must be by the combined efforts and influence of all the different commercial nations interested. The English reviewers take the same view, giving to each nation its proportionate interest and influence, comparative with its amount of commerce with Asia, which of course would give the entire control to England. Would the people of the United States submit to such control? And does the constitution provide for the forming and carrying on such a copartnership? Clearly not.

In Gen. Garella's very able, and the only scientific report of a survey of Panama, in

the years 1812 and 1813, with a corps of engineers, under the orders of the French Government, he takes up and examines the routes of Nicaragua and Tehuantepec. His estimate for the former is about one hundred and forty eight millions of francs, for the latter one hundred and fifty one million four hundred and fifty thousand, and for Panama one hundred and forty-nine to one hundred and sixty-five million. These estimates may be considered as conjectural, as he says he had no comparison as a basis. It would be subject to every possible embarrassment; the sparse population of a lawless character, no security of person or property, and the Mexican Government unable to enforce laws if she had them. A strong military force would be absolutely necessary, from one end to the other, both to support and protect the works and the commerce. An entire absence of material; laborers and material to be taken from a northern clime; subject to heavy expenses in execution, both from climate and local position, the former so uncongenial to our citizens as to render it almost if not quite impossible to sustain them. Therefore, the work could not be done, protected, or commerce carried on. It is fair to presume the results would far exceed Gen. Garella's estimates. In fact, another estimate by him for Tehuantepec is as high as 181,450,000 $\frac{1}{2}$ , and from all our experience in such estimates, and the fact that the people of the North cannot live in such a climate, the winter months so rainy and summer so hot that no men could work or stand it, we have good reason to believe that the actual cost would very far exceed any estimate made. General Garella abandons all as inferior, and devotes all his effort to Panama.

Now the question is, can we do this work; and how; and what would be the probable results? It is, I think, perfectly clear that our Government cannot furnish means, nor enter into such a copartnership. Then, if done, it must be done by individuals. Would Boston, New York, Philadelphia, Baltimore, Richmond, Charleston, and even New Orleans, furnish capital to build a thoroughfare, and population for a city to carry on a commerce under another Government, in the benefits of which they cannot participate, nor derive any income for their capital? This is what no business man would do. And now let us see if this would be so. We will suppose the canal to be built, and all the commerce of Europe with Asia passing through it. Europe would furnish her own vessels for both sides—a ship canal, no transshipments required—and, I ask, what benefit could any city, on all the Atlantic or Gulf coast, derive from it? Surely none. In a political point of view, it would place all the marine, naval and commercial, of all Europe permanently and directly at our doors, in the most commanding position; and, as to our own commerce with Asia, would it be benefited at all by this change of route? Our commerce with Asia is not now large, owing to the fact that climate, distance, and expense prevent an exchange of commodities; which difficulties could not be removed by a canal.

The climate would forbid the passage of our produce through it. Nearly all our commerce with Asia is with China, consisting of teas, silks, &c.; and, mostly consumed north of Charleston, could receive no benefit from this route, but, on the contrary, would be subject to delays, losses, dangers, and damages from climate, and any benefit to the small amount which might perhaps be taken directly up the Mississippi as far as the mouth of the Ohio would be more than overbalanced by the delays and damage of climate, which none but those acquainted with the business can understand. And would the states and cities north of the Gulf furnish means to the amount of from thirty to fifty millions, and submit to such a tax, barely to put out of their possession and under another Government the route for a commerce which they cannot participate in or ever control? Clearly not. Such, it appears to me, would be the result of the canal, even with all the success predicted. It would be productive to us of nothing but evil. We have declared to the world that we will not submit to any foreign intervention or control of the affairs of this continent; and, at the same time, propose to enter into an alliance, offensive and defensive, whereby we yield the control of the commerce of the world, check and retard our prosperity and destiny for half a century at least, and finally end in a desperate, bloody, and expensive war!

The object of a canal or railroad is to shorten the route from Europe to Asia, and, if possible, bring that commerce, which has controlled the world from time immemorial, across the continent; and, by lessening the expense, shortening the time and distance, and facilitating and increasing intercourse, to increase that commerce by a further and more diversified exchange of commodities. Barely substituting one route for another could not increase, because that alone could not create or produce any new means to sustain it. If a new route opens to production a wilderness, and thereby increases population, with means to sustain it and afford an exchange of commodities, it would, of course, increase commerce; or a new route which would greatly lessen expenses of transit, save much time, increase and facilitate intercourse, would naturally increase an exchange of commodities, and would also increase commerce. But neither of these desirable and all important results can be gained by a canal, because a canal or railroad across any part of the isthmus could not open to settlement and production an extend of wilderness country, as it is not there—Nature here having fixed the bounds over which the genius of man cannot dominate; climate, sterility and all, obstruct his course. And it could not shorten distance and time, lessen expense, facilitate and increase intercourse; as I will show there would be no shortening of distance or time, by giving the exact distances to be performed, both around the cape and through a proposed canal, as has been given to the public by Mr. Whitney, and from the authority of Professor Wittish, of the London University:

These distances appear so much shorter than those for the route across the isthmus, that an explanation is required. First, we start from London, latitude  $50^{\circ}$ , and cross the isthmus in from  $7^{\circ}$  to  $16^{\circ}$  north latitude, and about  $90^{\circ}$  west longitude, thence to Canton, latitude about  $23^{\circ}$ , and east longitude  $113\frac{1}{2}^{\circ}$  or about  $170^{\circ}$  of longitude, each degree of longitude full 60 miles, making from the terminus of the canal to Canton over 10,200 miles. Whereas, from Columbia river, latitude  $46\frac{1}{2}^{\circ}$ , to Shang-hai, latitude about  $32^{\circ}$ , and east longitude  $122^{\circ}$ , where all the commerce of China would centre, is  $110\frac{1}{2}^{\circ}$  of longitude, measuring on this parallel about 47 miles each, a distance of 5,400 miles.—thus it will be seen that for a vessel bound from the terminus of a canal across the isthmus to China, the shortest and best route would be first to the Columbia river, and then to China. Thus we see that this would gain over that of the isthmus from London to China 3,758 miles, to Australia 2,440 miles, to Singapore 1,398 miles; and New York gains over Europe about 3,000 miles to all these places. This seems to be Nature's route. On this belt, this line around the globe, is almost all the population of the world; on this line is and will be the greatest production of breadstuffs and meat, the sustenance of man and of commerce, adding wealth to the nation; the only route which can of itself furnish the means to build the road, or where the labor of men can make it available. Nature has here smoothed the way, and opened the mountains to let us pass. Then look at our picture, our position, with



this road completed; behold with one hand we reach out over the Pacific to the millions of Japan, China, and all Asia, with our manufactures, our cotton, our tobacco, our hemp, our rice, our flour, our corn, beef, pork, leather, and all our many and various products, and receiving back in exchange their teas, coffee, sugar, spices, indigo, drugs, silks, and various useful and curious fabrics, with gold, silver and precious stones—all, too, with our own ships and our own men; and with the other hand over the broad Atlantic, to all Europe, our various products in exchange for theirs, and receive their surplus population, to whom we give a home, a country, while our body draws to it and controls the rich commerce and wealth of all the world, spreading and circulating from ocean to ocean, thro' every artery, through every city from Texas to Maine, and from the heart, the centre, would spring and flow forth throughout the whole frame, the whole system, the life, the products of man's labor, from the earth, which created, would control and sustain it. The picture is grand, and might be considered a vision, had it any other foundation than the wilderness earth, which by the labor of man is to bring forth all we want, and at the same time richly reward that labor. It is a great plan, a great work; but we are the people to do big things. This we have only to commence; it works itself. Build the first mile and it prepares the way for another. The settler has the means of free transit to market, and his labor is wanted on the road; he is at once made independent and happy. It is the poor man's road, his hope and promise. It is the farmer and mechanic who will receive the greatest benefit; their small means and their labor on the road could purchase the land for 40 to 160 acres; their labor and crops immediately wanted on the road, and if a surplus, a free transit to market. Villages and cities would spring up, from one end to the other, all independent and happy, because the free intercourse with all the world afford a full reward for labor. Then will you take your money and send it out of our country, to be used against your interest, or will you have the Oregon road, which will cost you nothing but your votes? Mr. W. does not ask for one dollar in money, nor will he subject any man to one cent of taxation, and no harm to any; he does not even ask a survey for his route; all he desires is that the waste wilderness land may be placed so that by sale and settlement the means in money and labor can be produced to build the road, and when the road is completed, to be under the control of Congress, of the people, and no dividends. All this he proposes at his own risk and hazard, and if it fails the people lose nothing, as no part of the lands would be granted to him faster than the road is built. It appears to me that this is no mysterious affair—a plain, simple, business plan, grand and sublime, but as simple as grand.

I examined this subject nearly three years ago. I then endorsed it, and presented Mr. Whitney's memorial to the 28th Congress. Since that time it has grown upon the public mind, and I believe the people will have it, and the sooner the better. Z. PRATT.

#### FURTHER SHIPMENT OF COPPER—GOLD AND SILVER ON LAKE SUPERIOR.

A Detroit correspondent of the Tribune, under date Sept. 9, 1847, says:—"There are now at the Sault, 100 tons of native copper and copper chippings belonging to the Pittsburgh and Boston Company, brought down by the Napoleon on her last trip. The Propeller, it is expected, will bring fifty to seventy-five tons more. Col. McKnight is now loading a propeller here with supplies for this company, and will bring down, by the last of next week, another cargo, which, added to that already shipped, will make 334 tons shipped this season. The poorest portion of the cargo of the Jena yielded 65 per cent. of copper. The produce of this mine alone, this year, must equal, at least, three hundred tons of pig copper.

"We learn that Mr. Seymour, the distinguished German metallurgist, now in the mineral country, with Gen. James Wilson, of New Hampshire, has demonstrated that this native copper, particularly that at Copper Falls, contains alloy of both silver and gold, which gives it that peculiar bright appearance which distinguishes it from English copper. Another year's work will convince all, that we can do better than import copper from England."

#### LAWRENCE SCIENTIFIC SCHOOL.

ABBOTT LAWRENCE, Esq., of Boston, sometime since gave fifty thousand dollars for the endowment of a school at Harvard University, for the purpose of teaching, more thoroughly than has been common in this country, Geology, Mineralogy and Engineering. At a meeting of the Corporation of the University, at the late commencement, it was resolved to call this department the "Lawrence Scientific school." The American Mining Journal, published in New York, gives the resolutions of the Corporation, and accompanies them with the following remarks.

At a meeting of the corporation of the Harvard University, on the day of the late commencement, the following vote was passed:—

"Whereas, Hon. Abbott Lawrence, of Boston, has presented the sum of fifty thousand dollars to the President and Fellows of Harvard College, as an endowment of the Scientific School in this University, and for the foundation of Professorships of Geology and Engineering in the same, it is, therefore, unanimously

"Voted, By the President and Fellows, in token of their gratitude for this munificent donation, and in perpetual commemoration of the same, that the Scientific School, be henceforth, known and designated as the 'LAWRENCE SCIENTIFIC SCHOOL, in the University of Cambridge.'"

Mr. Lawrence, whose munificent gifts to various objects of public and private charity had before attracted a large share of regard, has conferred lasting honor on his name by founding this school; which, if well managed, must prove to be of the greatest service to the interests of this country and the world.

On the other side of the Atlantic, the necessity of establishing similar schools for the acquisition of knowledge in the practical sci-

ences, has not escaped the attention of those entrusted with the administration of public affairs, in the continental States of Europe. In France, M. Dumont, late Minister of Public Works, first proposed the erection of schools of Mining and Engineering, in the Mineral Departments, and the Chambers voted the necessary means without opposition. The Royal School of Mines, at Paris, established under his auspices, is considered one of the best scientific establishments of the French capital. Schools of Mining and Engineering are about being established in the departments of the Loire, Rhone, etc.; one at Orleans and Lyons, which will embrace the whole of that district; one at Montpellier and Bordeaux; one at Douai, which will embrace the departments of the North, comprising the great mining district of Mons, Valenciennes, etc.; one in the department of Sambre and Meuse, and the Upper and Lower Rhine. Men of the highest talent and the most enlarged experience, with good salaries, will be entrusted with the education of the students in those branches; the buildings will be fitted up on a large scale, with commodious lecture rooms, model rooms, and libraries, containing the best works on Mining and Engineering in every language.

The French and other languages will be taught gratis; and after having undergone the different degrees of study, both practical and theoretical, in every portion of each branch of learning embraced in the course of instruction, diplomas will be granted to students either as miners or engineers. The education in the department of mining will comprise mineralogy, geology; and all the best systems as yet adopted in every country in mining operations, a chemical knowledge of the various ores and strata, the sinking of shafts, driving of adits, the clearing of the water, and the principles of pneumatic and steam-power, ventilation of mines—in fact, every part connected with exploring, blasting with powder and gun-cotton, and all modern improvements in the science; the making of various metals, etc.

The education in the department of civil engineering will comprise railway surveying, levelling, etc., land and estate engineering, government surveying, geological and marine surveying, the construction of locomotives, railways, and all the requisite materials appertaining to railway cutting, embanking, tunnelling, bridges, and viaducts, the different gauges, the construction of ships (wood and iron,) and steam-engines for marine purposes.

In Austria, Mining Colleges have existed for many years, and have furnished many celebrated men to the scientific world. The miners in that country are a "privileged class," being exempt from service in the army and navy, and free from taxation; but they cannot leave the country without first obtaining permission from the Minister of Public Works and the President of the Mining Department.

In Russia there is also an Imperial College of Mines, at St. Petersburg. In Prussia and Belgium there are Schools of Min-

ing in the districts of Liege, Brussels, and Berlin. In Spain, there is one at Madrid, and Rio Janeiro, the Brazils, Havana, Bogota, Chili and Peru, Mining Colleges have been established on an extensive scale;—still there has never been any in England, one of the most important metallic countries in the world, nor in the United States, whose mineral resources, in almost every kind of metal, are vast beyond calculation, until the intelligent and liberal mind of the Hon. Mr. Lawrence laid the foundation for the "LAWRENCE SCIENTIFIC SCHOOL IN THE UNIVERSITY OF CAMBRIDGE." We hail the establishment of this school as auspicious of the highest good to the great and growing mineral interest of this country, as well as to the cause of scientific and practical learning among our people.

The buildings necessary to carry out Mr. Lawrence's intentions, are already in process of erection under his immediate superintendence, and will be completed at an early day.

#### MINING OPERATIONS ON LAKE SUPERIOR.

We take the following reports, in relation to Lake Superior Mining operations, from the New York Mining Journal of September 15th.

The United States Mining Officer, on Lake Superior, is requiring reports of the progress made in mining operations, from those holding locations, or working the mines in that region. We are very glad to learn that this is the case, and hope through this source, to be able to give to the readers of the Mining Journal the authentic information, which all persons, at all interested, so much desire. It will probably turn out that, of more than one hundred associations, formed ostensibly for mining purposes, not more than thirty are engaged in mining, and but few of these to any considerable extent. We have, on repeated occasions, expressed the desire that the persons having charge of mining operations, for the various companies, should furnish us with full reports of the progress made at the several mines in their charge; but our desire has, thus far, been complied with in very few instances, and we are left to attribute the neglect either to indifference to letting the world, and particularly the stockholders, know what is going on, or to the reason, (quite as improbable, we trust,) that the least said upon the subject the better. The Lake Superior News gives us a little light occasionally, and we hope the Mineral Officer, as from time to time he receives reports, will furnish that paper with the data to enable it to give us more. To the News, of the 28th ult., we are indebted for the following account of operations at several locations:—

**ISLE ROYALE AND OHIO MINING COMPANY.**—From the reports of the Agents of the Company, Messrs. RANSOM and BLAKE, made to the Government Mineral Officer, for the months of June and July, we learn that the Company are holding locations numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 34, and 43, made on Isle Royale, by Professor LOORE, in July, 1843, under permits from the Secretary of War, and heretofore reported to the War Department and to Congress. On the loca-

tions, the Company have at present some fifty persons variously employed in clearing the ground at and about the village of Ransom, Rock Harbor, in building houses, and in exploring and opening veins.

At Ransom, several houses have been erected, and preparations made for putting up a smelting establishment, for which the Company have much of the necessary machinery on the ground. Houses have also been erected on each of the locations; and on location No 11, there are houses at several veins. Several acres have been cleared, and planted with vegetables that look remarkably promising, and that have already furnished articles for table use.

A number of veins yielding copper have been opened, and experimental shafts sunk a short distance; but no mineral has been smelted, exported, or prepared for exportation. Several new veins of promise have recently been discovered, and the agents are sanguine in expectations of valuable copper ore.

**THE SCOVILL MINE—ISLE ROYALE.**—The mine of Philo Scovill is on location No. 40, on northeast end of the Island. In conformity with the Government requisitions, Mr. Scovill reports that he has three men engaged, besides himself, who were employed during June and July last in enlarging their buildings and exploring. A house and smith's shop have been erected, and in the latter a small smelting furnace has been put up. Explorations, with a view to mining, have been made, and a shaft sunk about ten feet. No mineral has been raised.

**LOCATION No. 14—ISLE ROYALE.**—The mine of C. G. Shaw, H. A. Ackley, P. Card, and others, is on location No. 14, located in July, 1843, by James Smithwick, and situated on Rock Harbor, bounded south by Lake Superior, west by location 13, (occupied by C. Whittlesey and others,) north by location 37, (occupied by Mr. Duncan,) and east by location 40, (occupied by P. Scovill. Mr. Shaw reports a force of seven men, who were engaged during June and July in erecting and enlarging buildings. Three dwellings, a smith-shop, and a root of provision house, have been completed. Two shafts have been sunk—one twelve feet deep, and the other fourteen feet—besides running a drift of about forty feet. No mineral has been exported or prepared for exportation. They still continue exploring.

**QUEBEC MINING COMPANY.**—The schooner Chippewa, Captain Angus, came down from Point aux Mines and Mica Bay of the north shore, on Friday last, with Mr. Wilson, government officer, and C. W. Ross, Esq., Clerk of the Quebec Company. From the latter gentleman, and Capt. O. H. Mathews, the resident superintendent of the Quebec works, we learn that every thing connected with their enterprise is progressing most satisfactorily. We have been shown some specimens of rich bi-sulphuret of copper discovered in veins that may be characterized as feeders to the great vein of grey sulphuret which the company are now engaged in developing, and which was more fully spoken of in our paper a few weeks ago. An addi-

tional force of some twenty or twenty-five men for these works came up on the last trip of the Detroit, and will be immediately set to work. Indeed, under the energetic and experienced superintendence of our excellent friend, Captain Mathews, the Quebec Mining Company, with present prospects before them, cannot fail of receiving ample reward for their enterprise.

#### COPPER ORE MINING.

We mentioned yesterday, (says the Detroit Advertiser of the 21st,) the arrival at this port of the propeller "Goliath," freighted with Copper Ore, from the famous Cliff Mines. While at our wharves, she was visited by a large number of our citizens, attracted by the peculiar character of the mineral. The larger part of the ore is in large masses or boulders of native copper, weighing from 200 to nearly 4,000 lbs.; twenty of them actually weighing over 2,000 lbs. each. One piece, of a square shape, eighteen inches thick, and apparently pure copper, was marked 3,707 lbs. It was cut from a single mass, weighing, in the mine, 40 tons, or 80,000 lbs. We noticed boulders marked 2,798, 2,660, 3,707 lbs., &c.

A considerable portion of the load was copper chips in barrels. The whole freight on board was 180 tons, and this is but a small share of similar ore ready for shipment.

We learn from a credible source that the company paid in cash to the government agents a per centage on \$45,000 for the shipments by the Goliath, rather than pay in kind after smelting.

The shipment is insured for \$28,000, and is valued at \$63,000. We are told that \$12 per ton will pay the forwarders handsomely for transportation from the Sault to Boston.

The shipment, with that by the propeller Cathcart from the Bruce Mine, will test, in some measure, the probable productiveness and value of these mines.

#### Locomotives, Long and Short Boilers.

The following remarks by the Editor of the Railway Chronicle, in relation to the construction of Locomotives, may be useful to some of our readers and we therefore give them a place.

**Long Boiler Locomotives.**—(Stephen's.)—Mechanics is generally reckoned one of the exact sciences, and its doctrines are accordingly placed among the truths about which there can be no dispute. In practice, however, it is by no means either exact or indisputable, for there is no class of men among whom there exist greater differences of opinion, more fertile sources of controversy, or more opposite systems of practice, than professional mechanics.

In the construction of locomotive engines, this want of perfect precision, this diversity of practice and opposition of opinion are strikingly exemplified. If there be a subject which from its nature we should fancy to be as clear and plain as a mathematical problem, and as capable of demonstration as the forty-seventh proposition of Euclid, it would be the determination of the respective powers, properties and functions of locomotive engines of which the forms are given. So far,



however, from this being the case, we have not only no fixed set of recognised principles, but we have actually as great diversity of fashion, tastes, prejudices, predilections for forms, arrangements, and contrivances, as if the coupling of an engine, the length of a boiler, or the size of a wheel, were as much a subject of taste and whim as the cut of a coat, or the length of the regulation feathers in Gen. Pasley's cocked hat. This is well illustrated in the present state of public opinion on what are called "long-boiler locomotives." Our readers remember when six-wheeled engines of an extra length first came into fashion—they may remember, that Mr. Bury's short-boiler engines came next into vogue; by-and-by they were found, or fancied, neither strong enough nor safe enough, and then came in again the long boiler with six wheels. Next we had an outcry from the broad gauge against the unsafeness of the length of the narrow-gauge engine, and now we have the broad gauge themselves building engines exceeding in length anything ever dreamed of by their much maligned opponents.

Now, it is quite plain, that all this party feeling is unwise and unworthy of professional mechanics. We should not be misled by words. There is nothing in the words "long boiler," or "short boiler," that *ipso facto* constitutes an engine either a safe or an unsafe one. A long boiler engine may be a very good one or a very bad one, as a short engine may be. The prejudice and the name should perhaps alike be discarded as likely to mislead.

Our attention has been called to this subject by the recent inquests that have taken place on accidents by railways. In some of them we have observed that much stress has been laid on the phrase "long-boiler engines," as if there were something peculiarly dangerous or bad in any engine with a long boiler. Our opinion, on the contrary, is, after a careful investigation both of facts and principles, that length of boiler is not a source of danger: on the contrary, we believe that both Mr. Gooch's large engine on the broad gauge, and Mr. Crampton's and Mr. Stephenson's on the narrow, all of them long-boiler engines, are perfectly safe.

It may be expedient for the present to confine our attention to the last of these, as it has appeared that one or two of Mr. Stephenson's engines which had long boilers have been exposed to accidents. This is admitted readily, even, we believe, by Mr. Stephenson himself; but what is necessary for our purpose is to observe that because a particular kind of long-boiler engine has been liable to accident, it by no means follows that all other long-boiler engines are also in the same predicament. On the contrary we have found that the cause of the "jumping tendency" of those few engines which met with accident arose from a mal-arrangement and mal-adjustment of wheels, which existed in very few engines, and which was departed from as soon as detected. While, therefore, the public has been deluded into the idea that the long boiler was at fault,

it appears that the arrangement of wheels was the real cause of error. In short, we have been led to this conclusion, that it is the length of coupling in relation to the length of boiler, and the respective weights on the wheels with reference to their relative positions, that taken together make one of the old engines either safe or unsafe—so that a short engine may be unsafe with bad arrangement of wheels, even at low speed, while another with a boiler double the length, and wheels better placed, may be perfectly safe even at the highest speed.

For the purpose of placing the subject before our readers in a satisfactory shape, it may not be inexpedient to enter rather fully into the following particulars and facts regarding the so-called long-boiler engines of Stephenson.

The long-boiler engine is one with tubes of 12 to 14 ft. long, instead of 9 or 10 ft., which is the length adopted in other locomotives. The addition to the length was made to use more profitably the fuel, by the greater reduction of the temperature of the gases evolved by the combustion of the coke before they were emitted from the chimney; thereby evaporating a larger proportion of water per pound of coke than had previously been done. This object was most successfully attained by the reduction of the temperature of the gases at the smoke-box end of the tubes from 7 or 800° to 4 or 500°, and an increased power of evaporation in the proportion of 7 to 9. At the time of this important improvement the extreme length of coupling was supposed to be limited to somewhere about 12 ft. The largest narrow-gauge passenger engines then constructed were 14 in. cylinders, and the greatest speed attained about 40 to 45 miles per hour. Engines with four wheels, overhanging weight before and behind them, as great as has ever been introduced into the long-boiler engine, and a length of coupling of only 7 ft., had been running for years with safety proved to be as great as that of any other class of engine.

In the first class of long boiler engines the wheels were put under the cylindrical part of the boiler, arranged as in other six wheeled engines, having the drivers in the centre, in order that the coupling might be limited, while the more economical length of boiler was adopted. Inside cylinders 14 inches in diameter, and consequently the cranked axle was maintained. The extreme coupling was 11 feet. This class of engine ran with great steadiness and economy even at the then almost unprecedented speed of 55 miles per hour; but was modified, after about four or five had been made, to obtain a more simple construction, which may be called the second class.

This had the cylinder outside, increased to 15 inches diameter, with the plain axle; the same general form in other respects and the length of coupling being maintained. With the increased power of the cylinders of these engines a greater weight was required to be placed on the driving wheels, in order that the force of the steam should be usefully employed in the traction of the train, and it was

found that the bite on the rail, even in ordinary weather, was not sufficient to keep the wheel from skidding. The weight thus placed on the driving wheels was taken principally off the leading pair of wheels, which were those sensitive to any blow that might be inflicted on them by a bad joint or otherwise, and by it lifted from the rails, no longer efficiently steadying the leading end of the engine, which, in fact, oscillated on the pivot of the driving wheels. It was then discovered that this arrangement of wheels was unsuited to engines of the power required for the increased loads and greatly increased speeds then maintained on railroads, and it was abandoned after a small number had been made. Some of these have been permitted to run without the attention to the weighting of the wheels which is so imperatively called for; but a new arrangement, not open to this objection, though maintaining the great advantages of economy and simplicity, has been adopted.

It is necessary, before describing this class of engine, to point out the fact which our experience teaches us, that all engines of great power, whatever the length of boiler may be, having this arrangement of wheels and a coupling which has usually been thought sufficient, have a tendency to rock in the same way as the class of engine we have been describing, arising, we believe, from the same cause. In proof of this it is, perhaps, only necessary generally to draw attention to accidents (engines of this the old class running off the rails) on the Great Western, the Manchester and Leeds, and the Grand Junction railways, which to those who have watched the progress of railway travelling will be a few well known instances out of the many which have really occurred. This has, no doubt, pointed out to the locomotive superintendent of the Great Western the necessity of adapting such a length of coupling as shall effectually neutralize any such tendency—a space (18 feet 6 inches) into which the long boiler (*long* as it has been made by the measurement of the imagination by the repetition of this unmeaning term of reproach) with its fire box might be dropped and suspended.—But to proceed with the description of the long boiler engine, with which we are all most concerned, as being that of which almost all the so called engines have been, and of which all are now being constructed.

This, the third class, has six wheels, the leading pair under the leading end of the engine, with the cylinder between this and the second pair of carrying wheels, while the driving wheels are close to the fire box, and within about 4 feet of the engine. The cylinders are 15 inches diameter, and the coupling varies from 11 feet to 13 feet 6 inches in length. The motion previously described does not and cannot exist with these engines, as the centre wheels have very little weight upon them—acting, as they do, only as a relief to the driving pair of wheels, to which they are placed as close as possible. Of this class there are a very large number running daily, as many as forty being on the London and North Western. The greatest speed

known to have been attained has been by these engines, and we cannot point out an instance, and we have not heard of one, where these engines have, by their uneasy motion, left the rails. The overhanging weight does not exceed that of the four wheeled engines, while the length of coupling is nearly double.

Thus we see that the cry against "long boiler engines" is unwarranted by the facts. The boilers in the Great Western new engines are long boilers, probably the longest in existence; but length of boiler is not in itself a source of danger.

A short boiler engine is, *ceteris paribus*, more dangerous than a long one, if the wheels be similarly disposed. Length of boiler is rather a cause of steadiness and safety, provided it be attended with a long coupling of the wheels, i.e., if it has a proportionably long base to stand upon. The great source of danger, or of oscillation at high velocities, is a wrong disposition of wheels, or an erroneous distribution of weights. By carrying too much weight on any one wheel and too little on another, and with too short a coupling, motion of a dangerous nature may be given to any engine, and this may be done whether the boiler is long or short. The most recent examples we have seen of these engines are smooth in their motion and at high speed steady and safe.

#### ATMOSPHERIC RAILWAY.

According to the following extract from the Plymouth Herald, the atmospheric system is doing better on the South Devon than on the Croydon.

**The South Devon Railway—Atmospheric Traction.**—We have pleasure in stating that the atmospheric mode of traction, which has now been in constant operation for several weeks, works most satisfactorily. In addition to the four extra trains on Monday, three of the regular passenger trains commenced running atmospherically—8 20 A. M., and 12 30 P. M., up, and 9 50 A. M., down, between Teignmouth and Exeter—no delay whatever is experienced by the change of the propelling power. The piston carriage on the down trains runs on to Newton, where it is taken off with the superfluous carriages, and placed on a convenient line to be attached to the up train when required—so that, on arriving at Teignmouth, the locomotive is removed, leaving the piston carriage to start the train when the signal is given; and on the down atmospheric train arriving at Teignmouth, the engine which has to run in front is instantly attached to the piston carriage, and is ready for the start, at all times, before the guard is ready, or the passengers are arranged. The 8 20 A. M. train, on Monday, started from Newton with the piston carriage, three second class, two first, horse box and carriage truck—all laden. On arriving at Teignmouth, the locomotive bade adieu to its burthen; and when the signal was given, the apparently powerless train moved off—to use our correspondent's words—"with an agility as if some superhuman power were concerned in the operation, the long train proceeding on with grace and ease, without any visible cause of propulsion." The different stations were called at as usual, and the train arrived

in Exeter at its proper time. This train is generally heavy, and the taking it on by the new system is a proof of confidence in its operation. The Bath mail up, is taken on by the 12 30 P. M., by atmospheric, from Teignmouth to Exeter. Every train during the past week has worked with the utmost regularity, and the doubts of those who remained unconvinced of the practicability of the system appear now to be entirely dissipated. It is expected that the line to Newton will be opened atmospherically in the course of a fortnight, the apparatus being in a forward state, when it is generally understood that all locomotive power will be dispensed with above Newton.

#### Smelting Copper Ores.

The following is said to be an improved method of smelting copper ores, and as there is very little known in this country, in relation to this department of useful industry—where so much is to be done—we give it, from the London Mining Journal.

In the *Mining Journal* of Feb. 6, we described an improved method of smelting copper, for which Mr. James Napier had taken out a patent: we have now before us a specification of another patent recently secured by the same gentleman, for further improvements in the smelting of such description of ores as he has not provided for in his previous one. In the first plan, when the ore contains little or no sulphur, the calcination described in his previous patent may be dispensed with; and as some copper ores are found to contain sufficient iron, it is not necessary, in such cases, to make any addition of iron, as described in the aforesaid patent. Another part of this specification applies to the treatment of ores containing silver or gold, or both, with alkali, lime, iron, coal, or galena. The first object in this new method is to separate the earthy matters; for this purpose, such an assortment of the ores is made, that the silica shall be in about the proportion of from 50 to 75 per cent.—the other ingredients in the matrix consisting as usual of alumina, lime, baryta, and the fluor-spar; oxide of iron causes the mass to fuse more readily; if the ore, or a mixture of ores, employed, contain less than the above proportion of silica, that proportion must be made up by the addition of sand; and, if the mixture contain too large a proportion of silica, lime or fluor-spar must be added to reduce it to the proper proportion. Should the ore contain iron and sulphur, in the proportion of one of each to two of copper, to every ton of ore is to be added 56 lbs. common salt, 40 lbs. lime, and 100 lbs. anthracite coal; these ingredients are then fused in the melting furnace, the slag and scoria skimmed off, the furnace tapped, the metal run into sand moulds, and the pigs to be treated as hereafter described. Should the ore contain less than one of iron to two of copper, sulphuret of iron must be added to make up the proportion; or, where the mass has been melted, and the slag skimmed off, add 30 lbs. of scrap iron; when perfectly fused, and the iron has disappeared, the furnace is to be tapped, and the copper run out into sand bowls; when the pigs are set, they are thrown into cold

water, in which they become disintegrated, and fall into a fine powder; this powder is left exposed to the atmosphere, and then calcined. The oxide of manganese may be used instead of iron, but iron is preferable; when the ores contain little or no sulphur, the calcination and disintegration may be omitted. Sand or lime, and oxide or carbonate of iron, is now to be added, to bring the silica and other ingredients to the above named proportions, for the purpose of converting the slag into a glass; 80 lbs. of common salt, 50 lbs. of lime, and 100 lbs. of anthracite coal, all finely ground, and to be added to 1 ton of ore, containing 12 per cent. of metal; but should the ore be richer, less salt and lime would be required, and more anthracite. The time for fusing 25 cwt. of the ore would be about six hours; and, should any regulus be produced, it must be afterwards roasted and refined. When the copper ore contains silver or gold, or both, it is to be calcined and disintegrated, so as to bring it to about 50 per cent.; it is then to be mixed with 50 lbs. soda ash, 50 lbs. slaked lime, 1 cwt. anthracite coal, 1½ cwt. scrap iron, and 4 cwt. galena; the whole is now to be fused, the slag removed; and, when the metal has been well tubbed, the furnace must be tapped, and the metal run into pigs. The lead will be found reduced at the lower part of the first and second pigs, and will contain the whole or greater part of the silver or gold previously contained in the ore; from this lead the precious metals may be separated by the ordinary processes, and the copper regulus is then to be re-roasted, and treated over again with fresh ores. Should the ore containing the silver or gold contain no copper, 4 cwt. of copper pyrites is to be added to every 16 cwt. of the ore, and treated exactly as above described.

#### GILLESPIES' WORK ON ROAD MAKING.

A *Manuel of the Principles and Practice of Road making*, comprising the Location, Construction and Improvement of Roads, (Common, Macadamized, Paved, etc.) and Rail Roads, by W. M. Gillespie, Professor of Civil Engineering in Union College. Published by A. S. BARNES & CO., 51 John St., New York.

LINDSAY & BLAKISTON } Philadelphia.  
GRIGG, ELLIOT & CO., }

RECOMMENDATION FROM PROFESSOR MAHAN.

"I have very carefully looked over Professor Gillespie's *Manuel of Road Making*. It is, in all respects, the best work on this subject with which I am acquainted; being, from its arrangement, comprehensiveness and clearness, equally adapted to the wants of Students of Civil Engineering, and the purposes of persons in any way engaged in the construction or supervision of roads. The appearance of such a work, 20 years earlier, would have been a truly national benefit, and it is to be hoped that its introduction into our seminaries may be so general as to make a knowledge of the principles and practice of this branch of engineering, as popular as is its importance to all classes of the community.

(Signed,) D. H. MAHAN,  
Professor of Civil Engineering in the Military Academy of the United States."

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Ralls. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.  
New York.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

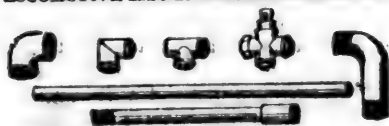
2m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 feet in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars.** The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**RAILROAD IRON.—400 TONS ENGLISH,** 60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,  
68 Broad Street, New York.

**FOR SALE—300 TONS (10 MILES) FLAT** Bar Rail, in parcels or wholesale—section 2½ inches wide by ½ thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

L. R. TRIMBLE,  
Wilmington, Del.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
**SHIPPING & COMMISSION AGENTS**

**PASSENGERS, SPECIE, GOODS, PARCELS, etc.**  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise.] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAML KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, Civil Engineer,  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

9v19 1v

### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hickey & Drury, Boston, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

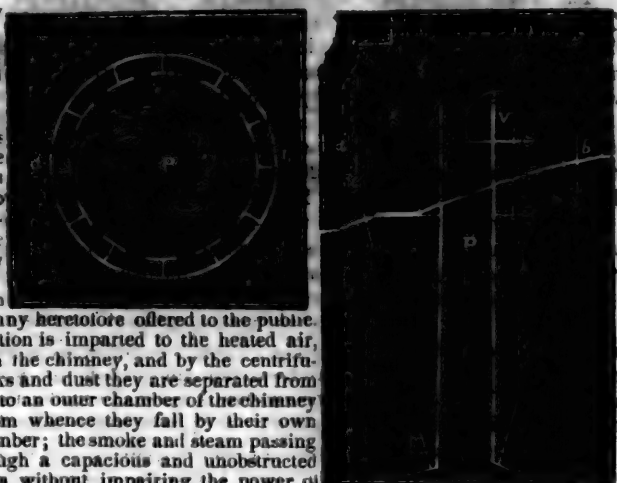
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,

Patterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

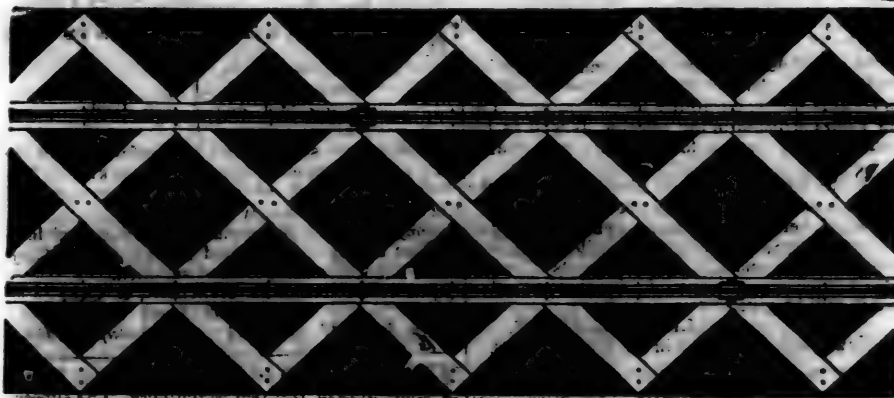


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestles for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

#### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,324 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile, including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,  
Patentee.

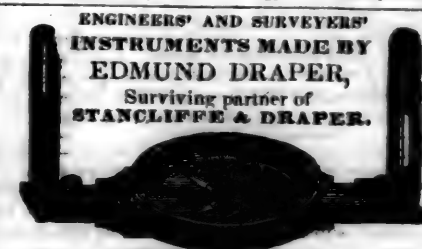
1925 28 Platt street, New York.

### RAILROAD IRON.

#### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,  
Pres't, Mt. Savage Iron Works,  
Maryland.



No 23 Pear street,  
1910 near Third, below Walnut,  
Philadelphia.



THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847. 1921

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.

1948 77 Pine St., New York.

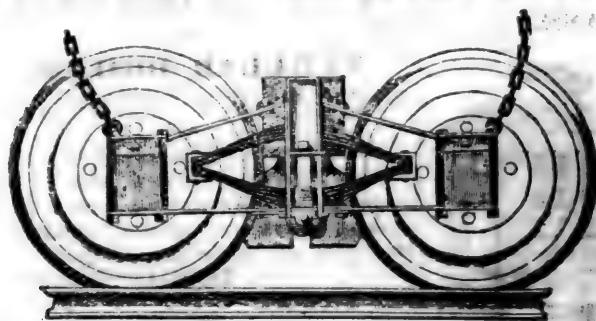
**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 3247



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—cables, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -	50	15-16	90	
13	3½	9 3	8½	16 -	27	11-16	13½	
14	3½	6 11	7½	13 8	17	9-16	10½	
15	2½	5 2	6½	9 4	13½	1-3	7½	
16	2½	4 3	6	8 8	10½	7-16	7	

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

1y46

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROX, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.  
To all whom it may concern:—This is to certify that the New Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup't Motive Power

**THE SUBSCRIBERS, AGENTS FOR** the sale of

Codorus,  
Glendon,  
Spring Hill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAML. KIMBER & CO.,**

39 North Wharves,

Apr. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
\$45 N. E. cor. 12th and Market sts., Philad., Pa.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10f

**TO LOCOMOTIVE AND MACHINE ENGINE** Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 10f

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, cash on delivery of brick on board. Refer to

James P. Allaire, } New York.  
 Peter Cooper, }  
 Murdock, Leavitt & Co. }  
 J. Triplett & Son, Richmond, Va.  
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Paxon, Jr. } Philadelphia, Pa.  
 Colwell & Co. }  
 J. M. L. & W. H. Scovill, Waterbury, Conn.  
 N. E. Screw Co. } Providence, R. I.  
 Eagle Screw Co. }  
 William Parker, Supt. Bost. and Worc. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardiner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART**,  
12 Platt street, New York.

**JOB CUTLER**, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2½ x 1 inch Flat Punched Rails, 20 ft. long. 25 " 2½ x 1 " Flange Iron Rails. 75 " 1 x 1 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures.

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

**REEVES, BUCK & CO.**

Philadelphia.

**ROBERT NICHOLS**, Agent,  
No. 79 Water St., New York.

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

**J. BALL & CO.**

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland.

**WALDO HIGGINSON**, Agent

**PATERSON RAILROAD** Summer Arrangement.

Commencing April 20th, 1847, the cars will leave  
 Paterson at New York at  
 8 o'clock a.m. 9½ o'clock a.m.  
 11½ o'clock a.m. 12 1-4 o'clock p.m.  
 4 o'clock p.m. 5½ o'clock p.m.

On Sunday.

8 o'clock a.m. 9½ o'clock a.m.  
 4 o'clock p.m. 5½ o'clock p.m.

Office 75 Courtlandt St.





**BALTIMORE AND OHIO RAILROAD.**  
MAIN STEM. The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**  
Fall and Winter Arrangement, 1847. On and

after Monday, September 20th,

until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....33 "

From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon.....\$1 00

" " " Xenia.....1 50

" " " Springfield.. 2 00

" " " Columbus.. 4 00

" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a passage for every \$500. in value over that amount.

47W W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 19½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

34 1y Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

**CENTRAL AND MACON AND WEST-ERN**  
Railroads, Ga.—These Roads with the

Western and Atlantic Railroad

of the State of Georgia, form a

continuous line from Savannah to Oothcaloga, Ga.,

of 371 miles, viz:

Savannah to Macon—Central Railroad.....Miles 190

Macon to Atlanta—Macon and Western.....101

Atlanta to Oothcaloga—Western and Atlantic.. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....\$0 50 To Atlanta To Oothcaloga \$0 75

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....0 50 0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....0 30 0 26

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....0 20 pr. 100lbs. 35

Crockery, per cubic foot.....0 15 " 35  
Molasses and Oil, per bhd., (smaller casks in proportion). 9.00 13 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....1 25 1 50

Ploughs, (small,) and Wheelbarrows.....0 80 1 05

Salt, per Liverpool Sack.....0 70 0 96

Passage—Savannah to Atlanta, \$10; Children, under 13 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

P. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.  
On measurement goods..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per bhd.

On molasses and oil.....\$6 00 per bhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**  
Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$25 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**  
Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAIL-**  
road line—direct. Via Newark, New Brun-

wick, Princeton, Trenton,

and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m., and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily, except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50	and \$3.00
" " Reading,	58	2.25	and 1.90
" " Pottsville	34	1.40	and 1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 70
Molasses, per hoghead.	8 50	13 50
" " barrel.	2 50	4 25
Salt per bushel.	0 18	
Salt per Liverpool sack.	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,  
Supt. of Transportation.  
Augusta, Ga., July 13, 1847.

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 22 1/2	1 54	1 10	1 05	0 76	0 86
and Knoxville & intermediate points.	0 22 1/2	1 54	1 10	1 05	0 76	0 86
and Chattanooga.					0 61	0 90
Between Augusta and Decatur and intermediate points.	\$0 21 1/2	1 70	1 15	1 20	0 85	0 90
and Knoxville & intermediate points.	\$0 21 1/2	1 70	1 15	1 20	0 85	0 90
and Chattanooga.					0 65	1 10
Between Charleston or Savannah and Decatur and intermediate points.	\$0 22 1/2	2 20	1 40	1 35	1 05	1 10
and Knoxville & intermediate points.	\$0 22 1/2	2 20	1 40	1 35	1 05	1 10
and Chattanooga.					1 00	1 10
					0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Seythes, Smiths' Bellows, Baskets, Tubes, Sticks, Brooms and other light articles, per 100 lbs.  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casts, or Grates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Lumber, per 100 lbs.  
Per 100 lbs. Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.  
Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 30
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.  
The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morristown, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

SETH ADAMS, Engineer, South Boston.

STILLMAN, ALLEN & Co., N. Y.

JAS. P. ALLAIRE, N. Y.

PHOENIX FOUNDRY, N. Y.

ANDREW MENEELY, West Troy.

JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,  
103 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL,

## AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 106 CHESTNUT STREET, PHILADELPHIA; AT FIVE DOLLARS PER ANNUM.

• SECOND QUARTO SERIES, VOL. III., No. 44

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[WHOLE No. 593. VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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### AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA

Saturday, October 30, 1847.

#### To Contractors—Pennsylvania Railroad.

The following notice from the Pennsylvania railroad company, will be received by the community as another evidence of the determination of those who have the direction and management, to press on the work in the most efficient manner. Thirty miles were put under contract in July, and the work has been going on in an efficient manner upon the sections then let, fifteen miles westward from Harrisburg and fifteen miles eastward from Pottsville. Now the letting is to be thirty-six miles westward from Section 20—or from the termination of that let in July last, west from Harrisburg—to near Lewis-town Dam, making forty-six miles continuous from Harrisburg.

We understand that it is the determination of the directors of this company to accomplish the work entrusted to their charge in the shortest possible period, and we hesitate not to say that, when completed, the people of Philadelphia will owe more of their prosperity to it, than to all their other public works combined.

**PENNSYLVANIA RAILROAD COMPANY**  
Notice to Contractors.—Proposals will be received until THURSDAY, the 30th day of November, at 10 o'clock A. M., at the Town Hall, in the Borough of Lewistown, for the grading and masonry upon about 36 miles of the Pennsylvania Railroad, extending west from section 20 to near Lewis-town Dam.

Plans and specifications of the work can be seen at the above named place for five days previous to the time appointed for receiving bids.

Any further information can be had upon application to WM. B. FOSTER, Jr., Esq., Associate Engineer at Harrisburg. S. V. MERRICK, President.

#### Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, October 21, 1847.

	Tons, cwt.
From Port Carbon.....	9,063 18
" Pottsville.....	4,563 01
" Schuylkill Haven.....	12,016 31
" Port Clinton.....	4,106 04

Total for week.....	29,749 14
Previously this year.....	1,090,134 02

Total.....1,109,883 18

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 31, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	6,906 02
Schuylkill Haven.....	2,186 17
Port Clinton.....	00 00

This week.....	9,092 19
Previously.....	175,590 00

Total.....184,682 19

#### Railway Cars and their Improvements.

We referred, in our last number, to a beautiful railway car, built by Davolport & Bridges, which we saw at the Fair in Boston; but we did not refer, as we intended when we commenced the paragraph, to another beautiful and commodious car, upon the Boston and Maine railroad, in which we had a seat to Portland. The car alluded to has what are termed "air springs"—but, we were told by Mr. Minot, the very efficient superintendent of the road, they are of a kind superior to those heretofore used, and much less likely to get out of order. This car was one of the largest size of 8-wheel cars, and is finished in a superior manner, both in point of beauty and durability—a point very essential to those who have to pay for them. It was built, we were informed, in the shop of the company at Andover—where they build and repair all the cars used on the road.

To an admirer of the railway system—at least to one who has watched its rise and progress—a visit to Boston is a season of pleasure and delight; and, however much other companies and their improvements may contribute to his pleasure, none deserve more of his admiration than the rise and progress, and present condition, of the Boston and Maine—when we consider that it has a rival road, and a good steamboat line to the point of its termination. It has been built in parts, but it now forms an entire line, between Boston and Portland, with spacious depots,

engine house of great capacity, and machine shop adjoining at Boston, with car shops at Andover.—The management of the road appears to be equal to any of the New England roads; the business and income has increased immensely the current year, over any preceding year, and we are fully of the opinion that they will be obliged soon to lay a double track from Boston to the new city of Lawrence, and also for several miles at the half way, or meeting point, to avoid detentions of the trains.

#### Winter Freight for Railroads.

"The pork packers at the west are generally prepared for the operations of the season, and at Cincinnati, on the 13th inst., says a Pittsburg paper, the prospect was favorable for an early commencement. At St. Louis, it was calculated the market would open at about \$3 and \$3 50 per 100 pounds, with a fair supply of good hogs upon the market."

"The pork packers of the west" will find a new era open upon them when there is a continuous railroad from them to a market. Then the hogs will be carried in carcase to the salt and the barrels—and thus save a considerable expense to the consumer—then we shall see the fat porkers of the west coming to us by thousands as large as life.

#### Increase of Receipts on Railroads.

We are pleased to learn that the increase of business on railroads has not been confined to any one section of the Union, but that it is universal. We are informed that the receipts during the past ten months, upon the Central, Georgia, road has been about \$100,000 greater than for same period last year—and for the year it will probably amount to \$190,000.

#### Railway Brakes.

We frequently hear of serious accidents to railway trains for want of brakes of sufficient power to arrest its progress. We have often called attention to this subject, and urged it upon ingenious men to devise a brake which might be applied to every wheel in the train at the same time by a single motion, or power; and we have reason to believe that other, and abler minds, have deemed it of sufficient importance to devote their attention to it, from which we anticipate much benefit.

We some time since copied from the London Mining Journal, of August 14th, an article on the subject, and we are now informed that a gentleman of this city is also perfecting a model, for the same purpose.

\* See September 24th.



pose, which we are told will fully accomplish the object; and we hope soon to be allowed to give a description of it.

#### Androscoggin and Kennebec Railroad.

We learn from the Waterville Mail, that this whole road, including the bridge, is now under contract. The three sections from Winthrop village north, were let to Mr. Warren, of Pownal; the next five sections to Wm. Phelan, of Salem; the next to Messrs. Wall, Sanders & Co., of Waterville and Winslow; the remaining two sections at the Waterville end of the road, are let to Gerty & Fitzsimmons; the bridge across the narrows is let to Messrs. Emerson & Conner, of Fairfield; and that across the Emerson stream, to Mr. Scammon, of Waterville. We learn that the work on all these sections is to be commenced during this week. A portion of the pay for grading, in all instances in the above lettings, is to be taken in stock. A gentleman who has just returned from Lewiston, and who has been over the entire line between the junction and Winthrop, says, that on every section heretofore let, up to Winthrop village, there are several companies of men at work. The grading is pressed with all possible speed, and on several sections a large portion of the work is done. The stone for the masonry of the Great and Little Androscoggin bridges, has all been split out and is ready to be laid. We are gratified to hear of these operations and also of the progress made on those sections heretofore put under contract.

#### Pennsylvania Public Works.

##### Comparative Income of 1846 and 1847.

The following statement, from the Harrisburg Union, shows the amount of tolls received on the canals and railroads of this State, during the month of August, and the total receipts from 30th November, 1846, to 1st September, 1847.

Offices.	For August.	Total since 30th Nov.
Easton.....	\$17,942 53	92,204 54
New Hope.....	1,091 91	5,269 33
Bristol.....	2,629 99	15,758 59
Philadelphia.....	42,549 18	251,085 26
Paoli.....	1,378 52	11,164 21
Parkersburg.....	1,434 73	34,038 94
Lancaster.....	1,939 92	46,498 74
Columbia.....	31,736 21	200,074 99
Portsmouth.....	1,430 44	8,215 64
Harrisburg.....	1,885 35	15,930 49
Newport.....	262 84	4,014 09
Lewistown.....	811 77	13,155 07
Huntingdon.....	535 26	10,019 47
Hollidaysburg.....	20,842 40	114,446 16
Johnstown.....	19,616 03	131,513 75
Blairsville.....	1,609 88	11,084 98
Freepoint.....	390 36	3,415 30
Pittsburg.....	14,972 38	113,069 68
Dunnsburg.....	1,808 64	14,281 18
Williamsport.....	895 67	7,980 65
Northumberland.....	4,742 23	33,353 41
Berwick.....	20,950 50	72,250 90
Liverpool.....	232 21	7,753 86
Schuylkill viaduct.....	37 05	286 2
Portsmouth Outlet Lock.....	16 00	1,223 27
Swatara Aqueduct Bridge.....	21 41	324 93
Duncan's Island Bridge.....	105 63	2,120 41
<b>Total.....</b>	<b>191,739 11</b>	<b>1,211,373 09</b>
Same period, 1846.....	<b>136,324 20</b>	<b>847,201 58</b>
<b>Increase in 1847.....</b>	<b>55,425 91</b>	<b>364,171 51</b>
This amount is derived from the—		
Main line to Pittsburg.....	\$958,565 86	
Delaware Division.....	113,232 37	
Other works.....	139,574 86	
		<b>\$1,211,373 09</b>

But for the unfortunate interruption of navigation by the late storm, the receipts for the whole year would probably have reached \$1,600,000—as it is,

there is reason to fear that it will not exceed a million and a half; yet with only that amount of gross receipts, it will exceed those of last year by nearly, or quite, \$300,000, which is encouraging to the people of Pennsylvania to meet the interest upon their debt promptly, as a similar increase for a few years more will relieve them from taxation to pay interest.

#### Railway Car Builders.

The question has been often asked us "Why is it that we have no establishment in Philadelphia, or its vicinity, for building railway cars?" No place in the Union has built as many locomotive engines as Philadelphia. Scarcely a road in the Union but has been indebted to our shops for locomotives, yet no cars bear the mark of "Philadelphia?"—and why not? It seems to us that there is no point in the Union which offers greater inducements for a first rate establishment in this line than Philadelphia;—and we therefore suggest it to the enterprising young men in the line to look to it. It is a field worth cultivating, and it will not long remain unoccupied.

Notwithstanding the extensive establishment of Davenport & Bridges, at Cambridgeport, Gilbert & Eaton, of Troy, and another at Worcester, Massachusetts—there is to be another, as we learn from the Norwich Courier, at Norwich, Connecticut, on a large scale, thus showing that the business is considered by the shrewd men of that region not yet overdone.

The following description is taken from the Norwich Courier, of 16th inst., and the establishment is, we understand, to be under the direction, in whole, or in part, of Mr. James D. Mowry.

"*Norwich Car Manufactory.*—We always hail with much satisfaction the establishment in our city and town of any new branch of manufacturing or mechanical business, since to these sources it is we must mainly look for that productive labor which adds to the real substantial wealth of the community. We dare say a large portion of our citizens are quite ignorant of the fact, that an establishment for the manufacture of railroad cars of all descriptions, and of locomotive engines, is in progress of rapid completion in this city. Many of our readers no doubt have noticed two long brick buildings which have been, for some time past, going up on the south side of the road leading to Greenville. These are the buildings of the "*Norwich Car Manufactory.*"—One of these is to contain the workshops, as they are called; the others for upholstering and setting up the cars. The former is about 200 feet long, and some 50 in width—the second 150 in length, 50 in width, and three stories high. Quite a number of brick tenements, also, for the accommodation of workmen connected with the establishment, are going up simultaneously with the other buildings.

"The number of hands to be employed in the car building department is about 200, and the company hope to be ready for action in the course of four or five weeks from the present time.

"The department for building locomotive engines is not to go into operation until the other branch of business is well under way. It is to follow in due time in regular order, however. And when the whole concern is got in motion, what with planes, saws, chisels, mallets,

'The clink of hammers closing rivets up,' and all the other machinery in full blast, we incline to think such another babel will be hard to find any where in Norwich. Success to the enterprise, say we! No more eligible spot could be found in all New England for an extensive establishment of the sort. Every possible facility for sending their cars and locomotives in any and all directions, will be

enjoyed by the company. Look for instance at the vast net work of railroads in Massachusetts, New Hampshire and Vermont, which furnish at once the means of transportation, and create a demand for the products of these workshops. As an illustration of the amount of business which the Norwich car manufactory may reasonably anticipate, we may state that we are informed by one of the company, that already since the formation of the company, contracts to the amount of not less than two hundred thousand dollars, for railroad cars, have been offered them."

There is also a new car manufactory recently established at Springfield, Massachusetts, by Messrs. T. & C. Watson, of which we have recently heard, and expect to hear more soon.

#### Baltimore and Ohio Railroad.

##### Twenty-first Annual Report.

We find, in the Baltimore American, the 21st annual report of this company. It is given in the full and lucid manner of the able president of the company, and will be read with deep interest by all who are in any way interested in the success of the noble work, or are familiar with the difficulties which it has had to encounter, and which it is sure to overcome; and therefore we give it a place in the Journal without delay—and refer our readers to it for the interesting facts it puts forth, rather than to any remarks of our own.

We cannot omit, however, to refer to the statement of the falling off in the revenue of the Washington Branch, since the last reduction of rates.—We hoped for a different result, though we freely admit that there are many other lines in this country where a reduction of fare would be more likely to increase receipts than on the line between Baltimore and Washington.

At a meeting of the stockholders, held pursuant to the charter, on the second Monday of October, 1847, in the city of Baltimore, the President and Directors of the Baltimore and Ohio Railroad Company submitted the following report and statement of the affairs of the company:

#### FIRST, OF THE MAIN STEM.

The statement of A shows the state of the company affairs on the 30th ult., and the revenue and expenses of the main stem for the year ending on the same day are shown by the statement B.

These statements exhibit a considerable increase both in the trade and travel; and it will appear from an examination of the various items of which they are composed, and from the elaborate report of the Chief Engineer, acting as General Superintendent, here appended, that in proportion to the amount of business, there has been a very favorable diminution in the cost of transportation and expenses of working. The general economy in the management of the road, either in regard to its particular condition, or as compared with other roads in the United States, or elsewhere, though more favorably situated, is also worthy of particular notice, and ought not to escape the attention of the stockholders.

The gross receipts from the business of the main stem, independent of its connection with the Washington road, amount to the sum of \$1,101,936 58, and the expenses of working and management, of all kinds, to the sum of \$590,828 26, little more than 50 per cent. of the gross receipts, and leaving a balance of

net earnings, over all expenses of working, of \$511,107 60, being more than 74 per cent. upon the capital. Without reference to the detailed statements and observations in the report of the chief engineer, and to the subsequent remarks in this report, or to the working of other similar roads, this result would establish the general economy in the administration of this work, and show that the cost and expenses of transportation bear a reasonable and economical proportion to the entire receipts from trade and travel. If, therefore, there were no other objects to which the board were under an obligation to apply the above stated net receipts, the dividend for the past year, under the present system of management, might not have been less than seven per cent., and the necessity of applying them to other objects, however it might be regretted, has been altogether unavoidable.

The stockholders were informed in the last annual report that engagements, made prior to the month of September, 1846, for reconstruction of 30 miles of the old track, for new locomotive engines, for new burthen cars, and for improvements at the several depots, stated in that report at \$325,000, would be chargeable upon the receipts of the year just closed—and that by the interest upon the bonds then authorized to be issued, and the installment payable during the year to Messrs. Barling, Brothers & Co., the amount so chargeable would be swelled to an aggregate of not less than \$418,000.

It is now to be observed that the payments during the year on account of all the foregoing items have actually amounted to the sum of \$403,662 63, and that from the receipts of the year there has also been paid, on account of surveys west of Harper's Ferry, for interest on temporary loans, rendered necessary to meet the engagements of the previous year in anticipation of the accruing revenue, and for additional burthen cars, indispensable to comply with the more pressing demands of the increasing trade, the further sum of \$37,534 10.

Of the net earnings, as shown above, not expended on account of capital, and which it is in the power of the board to replace by the sale of their six per cent. bonds, the board have declared a dividend of three dollars upon each share, and applied the further sum of \$20,000 to the sinking fund provided, as stated in former reports for the reimbursement of the loan of \$1,000,000—on account of the Washington road, leaving a surplus to be reimbursed from the cost of reconstruction by the sale of bonds of \$23,916 50.

It ought also to be observed that while, from the causes already explained, the dividend of the city and individual stockholders does not exceed three dollars per share, the State of Maryland has derived much greater advantages from her connection with this enterprise. The subscription of \$3,000,000 made by the State in 1836, with a distinct understanding that both the city and state should at the time contribute an equal sum, was paid in five per cent. sterling bonds; and that, although the subscription by the city has been fully realized and applied to the construction

of the road to Cumberland, yet, that in consequence of the depreciated credit of the State, the sterling bonds received from the treasurer have remained for the most part unavailable. Of the entire sum of the \$3,000,000, an amount not exceeding five thousand pounds sterling have been disposed of and while the company has continued regularly to pay the interest upon that amount to the bondholder, the State, during the whole period, has annually received larger sums from the company than any other stockholder.

During the past year, including the bonus, the State has received, from the earnings of the Washington road, an amount equal to 10 per cent. upon her subscription to that road—and with the dividend from the earnings of the main stem, the State has actually received a sum equal to seven per cent. upon her investment in both roads.

Of the revenue heretofore applied to reconstruction, the board have replaced during the year the sum of \$49,105 12 by the sale of their six per cent. bonds, at prices averaging about their par value; and it may be added, that by the consent of the city authorities to receive the present dividend, payable to the city, in the same securities, the board will be enabled to make a further sale of the same description of bonds to the amount of \$105,000, at their par value.

It is proper also to state, that during the past year the board have entered into contracts, within the estimates of the engineer, for the further reconstruction of 31 miles of the old track, payable partly in the company's notes at long credit, and partly in the six per cent. bonds alluded to in the last annual report, at par; and that they have also entered into contracts in the further amount of \$152,872, being \$46,000 less than the cost estimated by the chief engineer, for indispensable alterations in certain parts of the old track, payable altogether in similar six per cent. bonds of the company at their par value.—For so much of the foregoing engagements as are payable in the notes of the company, the board must rely ultimately upon the sale of an additional amount of six per cent. bonds, or upon loans in some other form, and until one of these can be effected upon favorable terms, upon the current receipts of the business of the road. The effect, therefore, upon the dividend of the current year must depend upon the success of one of the first resources.

A proper regard to the increased trade and travel upon the road, and to its economical working, and, what is even of greater importance, to the safety of the public, would not permit a thorough reconstruction of the old and imperfect track to be longer delayed.—By some, or all of the resources at the command of the board, these objects must be accomplished with the utmost possible despatch—and the duty of the board will only be discharged by accomplishing them according to their best judgment, with all the means at their command, and in a manner the least onerous to the stockholders.

Up to this time, it is not doubted that an impartial examination of the subject will satisfy the stockholders, that in the discharge of

the arduous and multifarious duties devolved upon the directors the board have practised a due economy and carefully guarded the interests entrusted to them.

The exhibition they are now enabled to make of a net earning of more than seven and one-quarter per cent. upon the capital, over and above all the current expenses of working and management, including extraordinary repairs of the roadway, bridges and machinery of all kinds, is not only a conclusive evidence of the economy with which their duty has been performed, but ought to afford substantial evidence of the future profits of the work, and of the stability of the company's credit.

This part of the subject, however, cannot be properly understood or appreciated, nor will the stockholders be able to do justice to the present condition or future prospects of their own enterprise, nor properly sustain its credit, without bearing in mind that their work is, and for some time must remain in an unfinished state—unfinished, not so much in regard to the termination to which it is designed ultimately to extend it, but, what is equally important, and to the present occasion more pertinent, unfinished in regard to its capacity and power of operation throughout the present line. It would be a grave error, lending to serious and perpetual misapprehension to conclude that a railroad actually constructed between two given termini, was thereby finished and requiring no farther expenditure from the application of its resources to the purposes of capital. A railroad can be said, in no sense, to be finished until it is not only constructed and open for trade between two given points; the road must be considered as unfinished until it can be supplied with all the power and machinery of every description necessary to accommodate the public, and effectively and economically to conduct its daily operations. In all railroad companies in all countries this obvious view of the subject is universally conceded and acted upon, and everywhere the cost of a road and of all other objects comprehending its capital, is understood to include, not only the actual construction of the roadway, but the supply of all the stations, depot buildings, engines, cars and machinery of all kinds necessary to its effective operation. Until, therefore, a railroad is not only actually constructed, but provided with all that is necessary for its effective working, it must remain unfinished, and while it is the duty of the company to proceed to finish the work in their charge with all proper energy, the only means by which it can attain that object is an increase of its capital by new subscriptions, or by some form of loan for the reimbursement of which both principal and interest, the annual receipts are the only resource. The stockholders will scarcely need be informed, therefore, that not only the present road from Baltimore to Harper's Ferry, in consequence of the radical imperfection and defectiveness of the original construction, is yet unfinished, requiring a large annual expenditure to complete it, but that in regard to the necessary stations, depot buildings, and cars and machinery of every des-



cription, the whole work is yet unfinished, and on this account annually absorbing a considerable portion of the receipts to supply the defects. It must, then, be apparent that any unfavorable disposition between the rate of the dividends and the amount of the net earnings can in no degree be attributed to improper expenditure in the working, but arises wholly from an unavoidable necessity of applying so large a proportion of the receipts to put the road in a finished state, to adapt it to the just demands of the trade, and to render it ultimately profitable to the stockholders. It is seen that during the past year under the present economy, if the defectiveness of the road and inadequacy of the machinery had not required such a heavy expenditure, the net earnings of the year would have justified a dividend to the stockholders of seven and a quarter per cent., and yet, in consequence of the necessity of such an expenditure, the board have been compelled to confine the dividend to three per cent., and temporarily to apply at least four per cent. of the net earnings towards completing the work.

It may not be out of place in this connection, and for better illustration of this part of the subject, to state that from the opening of the road to the year 1837, inclusive, (a period of 8 years) the gross receipts amounted to \$1,439,151, the expenses to \$1,038,818, the dividends to \$144,138, and the expenditure on account of capital only to \$247,195.—From the close of the year 1837 to the end of 1847, the gross receipts have been \$5,979,097, the expenses \$3,332,783, the dividends \$735,000, and the expenditure on account of capital \$1,911,314. So that from the opening of the road to the present time, the stockholders have received from its earnings \$879,138, and the expenditure for general objects of capital has been \$2,158,509. The ratio of expenses to receipts prior to 1837 was 72.7 per cent., and from 1837 to 1847 the ratio has been 55.7 while the excess of current receipts over current expenditures prior to 1837 was \$391,333, and subsequent to 1837 it has been \$2,158,500.

In yielding to the necessity which has thus been explained, the board have only followed the example of all others engaged in the management of similar works, practising, as they believe, not less economy than any other administration of railways that they might be required to imitate; and while it may be expected of the public at large to be satisfied with so liberal a provision for the accommodation of the business, the stockholders, in view of the ultimate benefits to flow from it, will, it may be hoped, be content with a policy dictated no less by the necessity of the case, than their own duty and true interest.

The result of this policy, and the economy with which it has been carried out, as well as the beneficial effects upon the interest of the stockholders may be seen in the progressive improvements in their own enterprises, and in its present condition and future advantages.

The influence of the administration of the present board cannot be traced to an earlier period than the middle or close of the year

1837. In that year the length of the road being 82 miles, only 157,102 passengers and 66,703 tons of freight were carried in the cars, and the machinery imperfectly adapted to that amount of business; in the present year upon a road of 178 miles, there have been transported 288,674 passengers and 263,334 tons, and unless from sudden accumulation at unexpected and temporary periods, there has been no deficiency of power or means. Anterior to the year 1837 and up to the year 1835, there had been only five small dividends varying from 37½ cents to \$1 12½ per share, and from 1835 to 1840 no dividend had been declared.

In 1837 the outstanding current obligations of the company were not less than \$130,000, and the aggregate expenses of working the road only, was at least 95 cts. in the dollar! As might have been expected from this result the power and machinery of the company were inadequate even to the inconsiderable business of that period; and only \$750,000 of the original subscription remained unpaid, and that must in a few years only have been needed for the payment of debts and for the augmentation of machinery, leaving other objects of expense swelling beyond any resources at the command of the company.—How long, under a continuance of such cases, the road could have been kept in operation it would now be needless to conjecture. At the end of the year 1840, a period of two years, the remaining capital had been called in, punctually paid and applied to the reduction of the inclined planes at Par's ridge, to the removal of other sources of perpetual and wasting expense, and to the augmentation of machinery of all kinds. During the same time an improved system of repairs of roadway and machinery was adopted, the outstanding obligations of the company were fully discharged, and a dividend of two dollars per share was paid to the stockholders out of the net earnings. During those two years the construction of the road west of Harper's Ferry was commenced under circumstances in many respects unpropitious, and as early as the month of November, 1842, from the proceeds of the city subscription of 3,000,000 and the application of a considerable portion of the annual receipts, was completed as far as Cumberland, a distance of 96 miles, at a cost of not less than 3,623,606 28.

During the period subsequent to 1837, a dividend to the stockholders was intermitted for a single year only, the earnings of the year 1842 having been applied to the extension of the road from Harper's Ferry to Cumberland. In 1841 and 1843 the dividend was \$2 per share, in 1844 \$2 50 per share, and in 1845 and 1846 \$3 per share.

The comparative progressive improvement in other respects during the same period subsequent to 1837 is not less striking. In that year the company owned only 14 locomotive engines, and these of the fourth or smallest class, of which some were actually unfit for use, and the whole, more or less, in an imperfect condition. From that time to the present the motive power of the company has been increased by construction or otherwise

of 13 of the largest class, 2 of the second, 12 of the third and 11 of the fourth class, in all 38, and in actual capacity equal to 72 of the class of those employed in 1837. The augmentation and improvement in the number and condition of the cars and other machinery may be taken to be in the same proportion.

In 1837 the cost of repairs of road and bridges, the latter being comparatively few in number, was not less than at the rate of \$1,203 per mile of road, and at the end of 1846 before the occurrence of the adventitious and temporary causes adverted to and explained in the report of the chief engineer hereto appended, notwithstanding an increase of nearly three-fold in the business of the road, and a considerable addition to the number of timber bridges, the cost of similar repairs did not exceed \$918 per mile of road, being about 25 per cent. less than at the former period. The cost of repairs of machinery, engines and cars, in 1837 was at the rate of 20.3 cts. per mile run by the locomotives with trains, and in 1846 the cost did not exceed 16.1 per mile run; being little more than one-half of the former cost, although the trains hauled in the last year were in all instances considerably larger. In 1837 the aggregate expenses of working the road, exclusive of the expense of horse power in the streets of Baltimore, and over the old inclined planes at Parr's ridge, was at the rate of not less than 173 cents per mile run by the locomotives; and in 1846 the same expenses did not exceed the rate of 50.8 per mile, nearly two-thirds less than in the former period.

It has been already stated that the proportion of the expenses of working the road to the gross receipts in 1837 was as much as 95 per cent.; and it may now be added that in 1846 the same expenses did not exceed 53 per cent. of the gross receipts. It must be observed, moreover, that this great reduction has been effected under the influence of a vastly augmented trade, of a continued dilapidation of the old and imperfect track, of a considerable multiplication of timber bridges and of a reduction in the charges for transportation of more than 35 per cent. below the rates of 1837.

Excepting in Great Britain, where the rates of charges are high and the wages of labor low and where the receipts from passengers, always the chief source of profit on railways, are much greater in proportion to those from burthen transportation, the expenses of working railways rarely if ever fall short of 60 per cent. of the gross receipts, and in most parts of the continent of Europe and elsewhere, they more frequently exceed that ratio. It is to be observed, moreover, that this proportion is seldom or never maintained except in the instances of new and well constructed railways with the most improved rail and form of structure, and with the aid of other advantages indispensable to the cheap management of such works, and where the receipts from profitable passenger travel considerably exceed those from the transportation of burthen. Independently of the railways in England, the ratio of expenses of the gross

receipts, and the economy in the working of the Baltimore and Ohio railroad, will be found to compare most advantageously with all the European works, the former being less and the working cheaper than upon the European works.

The roads in New England possess most of the advantages of newness and strength of construction, of liberal charges and large trade, and from the density of a general and manufacturing population derive larger receipts from passenger traffic than from tonnage; and are also universally conceded to be conducted with commendable regularity and economy. They possess besides many material advantages peculiar to that part of the Union which would enable them to attain a superiority over even the skill and economy of European works, which it would be difficult successfully to imitate.

With all these advantages, an investigation into the comparative cost and expenses of working the Baltimore and Ohio railroad, and of the principal New England roads, according to information derived from authentic sources would still further illustrate the economy with which the operations of this road have been conducted.

The average cost per mile of 12 of the principal railroads of New England, including their necessary equipment, may be stated at \$46,000, and that of the Baltimore and Ohio railroad, including the 30 miles reconstructed during the past and preceding years, may be taken to be about the same. If the cost of reconstructing the remaining portion of the old track, and of the alterations now in progress, be added, the average cost of the road would be more than \$50,000 per mile. The average of all the expenses upon 11 of the principal New England roads per mile run by the locomotives with trains, during the year 1846, was not less than 78 1 cents; and that upon the Baltimore and Ohio railroad during the same period, exclusive of the cost of horse power in the streets of the city, was, as before stated, not more than 89 8 cts. showing a difference of nearly 25 cents in favor of this road.

The average of the proportion of expenses to the gross receipts upon the 11 New England roads, during the year 1846, was a fraction over 50 per cent., and that of the Baltimore and Ohio railroad, during the same period may be stated at not more than 52 per cent. If, in regard to this part of the comparison, the superior construction and comparative newness of the New England road, their exception from the employment of horse power in cities, and the greater amount of passenger traffic in proportion to that of burthen be taken into consideration, (that on the Baltimore and Ohio railroad being \$654,916 14 from tonnage, and only \$447,020 14 from passengers) the cheapness of working the road could not be denied. Of all these facts, and grounds of comparison therefore, it may be safely predicated that, as soon as the old track of the Baltimore and Ohio railroad shall be thoroughly reconstructed, and by an adequate provision of motive power and other machinery and of depot buildings, necessary

for its general purposes, the entire road shall be placed in a finished state, the general expenses will not exceed the best economy upon any other work.

Notwithstanding, however, the confidence of the board in the results already adverted to, and in the general system of management gradually adopted subsequent to the year '37, they have not been insensible to the necessity of adapting it, from time to time, more perfectly to an extended road, to a rapidly increasing trade, and to the great augmentation of power and machinery demanded by the increasing business. The accumulated business in the year 1846, and the new approach of the periodical renewal of the timber of the road over its entire line, presented an appropriate occasion to revise the general system of management, and in the month of November last the president suggested a scheme of a modified system and invited the attention of the board to the necessity of a particular examination into the present organization of the company, and to the introduction of some reforms which he thought might be advantageously made.

He also asked the appointment of a committee by whom he might be assisted in the investigation, and in maturing the reforms that might be deemed expedient. The principal objects to be attained by the proposed modifications consisted in confining the general supervision and superintendence of all the departments nearer to their duties, and, by a judicious subdivision of labor, to insure a proper adaptation and daily application of the supervisory power to the objects under its immediate charge; in the multiplication of checks, and to effecting a strict responsibility in the collection and disbursement of money; in confining the company's mechanical operations in their shops to the purposes of repairs rather than of construction; in promoting the economical purchase and application of materials and other articles needed in every class of the service; and in effecting a strict and more perfect responsibility in the accounting department generally.

After diligent investigation, with the aid of the experience of other roads in New England and elsewhere, the committee proposed to attain the foregoing objects by confiding the departments of transportation, of the construction and repairs of the road, and of the repairs of machinery to a separate superintendence, under the immediate supervision of the chief engineer acting as a general superintendent over the whole.

They also subjected all these officers and all other principal agents to an annual appointment, and required satisfactory security for the faithful performance of his duties from each. They also adopted measures for the purpose of confining the receipt of money to as few agents as possible, and for ensuring the prompt payment from all of moneys received by them; and they prescribed a new and securely guarded system of tickets recommended by the best experience in other companies, and adopted checks upon conductors and other agents which were thought would prove effective in enforcing a rigid ac-

countability from all. They revised and re-modeled the system of accounts, and by bringing them into the company's office, effected a daily accountability and settlement of the account of each of the agents by the treasurer and secretary under the immediate supervision of the president.

It is not proposed in this place to do more than indicate the general features of the modified system now adverted to. It was adopted by the board as proposed by the committee, and, as far as can be inferred from its operation, it is believed that with such improvements as practical experience may suggest, it will fully realize the advantages expected from it, and effect all the security of which the case is susceptible. It may be further observed that, although in the execution of the system the duties of some of the old agents were materially changed, and in some instances the employment of new ones was required; yet it has been so arranged as that by reducing the salary of those whose duties had been lessened, the aggregate expense of the whole is less than was paid under the system it superseded. The report of the chief engineer, hereto appended, will not only disclose the present working of the system so far as tested by practical experience, but also contains in addition a general professional exposition by that officer, of the state of the road and machinery and of the working and operation during the year; and by its statements on these points will dispense with further observations in this report upon the same topics.

#### SECOND—OF THE WASHINGTON ROAD.

The affairs of the Washington road are shown by the statements D. and E.

It will appear from these statements that there has been a falling off in the receipts from this road, and that the diminution has been in the passenger traffic. During the past year the number of passengers has been five thousand four hundred & three less than in the year 1846, and the amount of revenue received from this source has been eleven thousand eight hundred and nineteen dollars less than in the preceding year. It may also be stated that during the past year there was an increase in tonnage transportation of 3,100 tons, and of \$2,198 87 in the revenue from that source over the year 1846. It may be inferred, therefore, that the experiment of a reduced charge authorized by the board in the years 1845-6, has not realized the expectations by which it was recommended; and the conclusion would seem to be warranted that the lowest charges do not uniformly increase the amount of travel.

It will, therefore, become the duty of the board to reconsider the subject with the benefit of the experience they have already had, and to make such addition to the present charges as a full investigation may be found to authorize. The net profits from the Washington road, including the surplus of \$6,724 19 remaining after the dividend in April last amount to the sum of \$45,131 66, of which the board have declared a further dividend for the last six months of \$2 50 upon each share of stock, leaving a surplus of \$6,881 66



to be carried to the account of the current year.

To be Continued.

#### Railway Accidents in Great Britain.

We find in the London Mining Journal of Sept. 25th, the following summary of railway accidents, during the six months ending June 30th, 1947. The proportion is greater, it seems to us, than heretofore,—being one death in 22,000 passenger carried, if we include the deaths occurring among the people employed upon the roads, and by the companies—but only one passenger in 1,050,930 carried.

In a Parliamentary return, presented to both Houses by command of her Majesty, respecting the number and nature of the injuries to life and limb which have occurred on the railways in Great Britain and Ireland, from the 1st of January to the 30th of June, 1847, as reported by the various railway companies to the Commissioners of Railways, minute details are given, by analysis, of the returns recorded in the office of the Commissioners of Railways—Duncan McGregor, Registrar.—It appears that of the 101 persons killed and 100 injured, on all the railways in Great Britain and Ireland, during the six months ending the 30th of June, 1847, there were—

14 Passengers killed, and 49 injured, from causes beyond their own control.

8 Passengers killed, and 3 injured, owing to their own misconduct, or want of caution.

8 Servants of companies killed, and 17 injured, from causes beyond their own control.

61 Servants of companies killed, and 21 injured, owing to want of caution, or recklessness.

10 Trespassers killed, and 7 injured.

1 Person killed, and 1 injured, while crossing the railway at the level crossings, owing to misconduct of servants of the company.

And for the same period, the number of passengers amounted to 23,119,412.

#### Speed and Power of Locomotives on the Narrow Gauge.

The following account of the performance of the Locomotives—"London" and "Snake"—is given by the London Herald of Sept. 1st. It shows that there has really been some improvement in Locomotive Engines since October, 1829,—when those allowed to compete, on the Liverpool and Manchester Railroad, for the prize of £500, were not to exceed five tons in weight, and were required to haul twenty tons, on a level road at the rate of ten miles an hour!!

Who will fix the limit of performance for the Locomotives built at the expiration of another period of eighteen years—or in the year 1865?

During Monday and Tuesday, (says the London Herald,) we availed ourselves, through the courtesy of Mr. Creed, the Secretary, and Capt. Huish, the general manager of the London and North Western Company, of several opportunities of witnessing the workings of Crampton's engine, the *London*, and Stephenson's engine, the *Snake*. The results prove that we were correct in stating, that the narrow-gauge engines are having their capacity for speed and power slowly, but steadily, increased.

On Monday we took a trip down with the

*Snake*, which was attached to the 10 o'clock morning mail train—down also with the *London*, which was attached to the 5:30 afternoon stopping train, and up from Wolverton in the evening, with the same engine attached to the night express train. Yesterday morning we again went down with the 10 o'clock mail express, taken, as on the previous morning, by the *Snake*, and in the afternoon with the *London*, which was coupled to the 5 o'clock express train.

It was understood, on the Saturday, that the two engines were to take the 10 o'clock morning mail express down to Wolverton on alternate days; but it was subsequently considered, that it would be the fairer way to make the *London* work trains similar to those that had been previously taken by the *Snake*. The result of this determination was, that the *Snake* worked the morning express mail on Monday and yesterday, but the order for her to take out the train on Monday reached those in authority at the Camden Town station at an hour that gave the driver scarcely time to get his engine in the best possible order. She came down the Camden Town incline, it is true, with hot water in her tender, but not quite so hot as could be desired in what might be termed an experimental trip. The train on Monday morning was late, and a slight side wind prevailed throughout the trip to Wolverton. The following is the working in detail. The load taken was 11 carriages, or about 55 tons. It is to be recollected, that, for nearly the whole distance to Tring, 32 miles, the line rises above 10 feet per mile.

Started from	h. m. s.	Time per Mile.	Miles per hour.
Euston q/c.	10 11 45	mi.	
1-4	20.29	—	—
5	21.48	1.19	45.6
6	23.6	1.18	46.9
7	24.24	1.18	46.9
8	25.48	1.24	42.9
9	27.17	1.29	40.4
10	28.47	1.30	40.0
11	30.16	1.29	40.0
12	31.43	1.27	41.4
13	33.3	1.30	45.0
14	34.36	1.13	43.4
15	35.48	1.29	43.9
16	37.07	1.19	45.6
17	38.22	1.16	48.0
18	39.41	1.19	45.0
19	00.00	0.00	00.0
20	42.18	2.37	46.7
21	43.49	1.21	41.5
22	45.04	1.25	42.4
23	46.30	1.29	41.9
24	47.53	1.23	43.4
25	49.16	1.23	43.4
26	50.38	1.22	43.9
27	00.00	0.00	00.0
28	53.30	2.52	41.9
29	00.00	0.00	00.0
30	57.57	1.33	31.1
31	00.00	0.00	00.0

Arrived at Tring 10 h. 59 m. 12 s.

The remainder of the journey to Wolverton, over a falling gradient, was performed at an average running velocity—that is, when the engine had got into full work, of about 47½ miles per hour.

The next trip was with the *London*, which took down 15 carriages, or about 75 tons. The train was a stopping one, and the driver was required merely to keep his time at the stations. This he did within a few seconds.

Between the 35th and 39th mile-posts, the driver appeared to have put on something like the power of the engine, and we noticed the work to be as follows:—

Mile posts.	h. m. s.	Time per mile.	Miles per hour.
35	6 43.04	0.00	00.0
36	0.44.16	1.08	52.9
37	0.45.21	1.06	55.4
38	0.46.25	1.04	56.3
39	0.47.35	1.05	55.3

The return trip with the *London*, with the night express, was, excepting the down working made by her yesterday, when attached to the five o'clock express, the best we have ever witnessed on a narrow gauge. The train consisted of ten carriages, weighing about 50 tons, exclusive of the engine and tender. The tender is a very capacious one, and was originally intended to carry sufficient water for a train to run to Rugby (83 miles) without stopping. It weighs 20 tons, or between 5 and 6 tons more than is necessary, so that the engine may be fairly said to have taken a train of 11 carriages, or 55 tons.

The train should have started at 9:30, but did not leave Wolverton till 9:46:30, or 16½ minutes after time. We arrived at Tring, about 21 miles from Wolverton, at 10 h. 14 m. 5 s., and made a stoppage there of 4 m. 15 s. Between Tring and Walford, we occasionally caught sight of the mile-posts, and found that the speed was from 62 to 64 miles per hour. On emerging slowly from the Primrose hill tunnel, the driver had the red signal against him, and he brought his train to a state of rest about 150 yards on the tunnel side of the Chalk Farm bridge, at 10:52:5, having run about 30 miles in 33 m. 45 s., including the time lost in getting up speed when departing from Tring, and in running slowly through the Primrose-hill tunnel, and coming to a state of rest. The average speed, over about 28 of these 30 miles, was 60 miles per hour.

The morning mail, taken down yesterday by the *Snake*, consisted of 14 carriages, weighing about 70 tons. The average speed, from the 4th to the 31st mile-post, was about 41 miles per hour.

The best trip yet made on the narrow gauge, was the *London*, with the 5 o'clock express train on Tuesday afternoon. It consisted of eight carriages, weighing 40 tons. We went down with Captain Huish, who was evidently much gratified with the high and regular speed maintained over the heavier gradients between Euston-square and Tring. The train, though weighing 40 tons, may be fairly estimated at 45 or 47 tons, when we bear in mind the perfectly unnecessary addition of some 5 to 7 tons weight of Mr. Crampton's tender. The train left Euston-square at 5 h. 1 m. 45 s., and performed the first 4 miles in 6 m. 14 s. The 5th mile, which is partly on a rise of 1 to 603, and partly on a level, was gone over at the rate of 49.3 miles per hour. The 6th mile is on a level, and was done at the rate of 51.4 miles per hour. The 7th is on a falling gradient of 1 in 1606, and this was gone over at nearly 54 miles per hour. We have then a rising gradient of 1 in 341, for up-

wards of 5 miles, and over this the working was as follows:—

Mile posts.	h. m. s.	Time per mile.	Miles per hour.
7.....	0.11.29	0.0	0.0
8.....	0.12.37	1.8	52.9
9.....	0.13.46	1.9	52.2
10.....	0.14.55	1.9	52.2
11.....	0.16.3	1.8	52.9
12.....	0.17.13	1.10	51.4

The remainder of the line up to Tring is chiefly on a rising gradient of 1 in 330. The following is the working over it:—

Mile posts.	h. m. s.	Time per mile.	Miles per hour.
13.....	0.18.36	1.13	49.3
14.....	0.19.40	1.14	48.6
15.....	0.20.52	1.12	50.0
16.....	0.22.0	1.9	52.9
17.....	0.23.5	1.5	55.4
18.....	0.00	0.00	00.0
19.....	00.00	0.00	00.0
20.....	26.19	3.14	55.0
21.....	26.24	1.05	55.4
22.....	28.20	1.05	55.4
23.....	29.34	1.05	55.4
24.....	30.39	1.05	55.4
25.....	31.44	1.05	55.4
26.....	32.49	1.05	55.4
27.....	00.00	0.00	00.0
28.....	34.59	2.10	55.4
29.....	00.00	0.00	00.0
30.....	37.13	2.14	53.7
31.....	38.32	1.08	52.9
Stop'd at Tring	39.56	0.00	00.0
Started from " 41.58		0.00	00.0
32.....	00.00	0.00	00.0
33.....	43.40	0.00	00.0
34.....	41.41	1.11	50.7
35.....	45.48	1.04	56.3
36.....	46.45	1.00	60.0
37.....	47.44	0.59	60.5
38.....	48.44	1.00	60.0
39.....	49.44	0.59	60.5
40.....	00.00	0.00	00.0

At Leighton the red signal was against the driver, who brought the train slowly up. About a minute more than the usual time was lost in doing this. The *London* had gained about 10 minutes, and it was found that a luggage train was ahead. This occasioned a stoppage 8 min. 15 sec. at Leighton. The working of the engine from Leighton was—

41.....	6.1.43	0.00	00.0
42.....	3.4	1.33	43.4
43.....	4.19	1.14	48.6
44.....	5.26	1.7	53.7
45.....	6.38	1.12	50.0
46.....	7.50	1.12	50.0
47.....	8.56	1.6	54.5
48.....	9.59	1.3	57.1
49.....	11.2	1.3	57.1
50.....	12.5	1.3	57.1
51.....	13.12	1.7	53.7
52.....	0.00	0.00	00.0

Arrived at Wolverton.....6.15.8.

This shows the 31½ miles over the heavy gradients to Tring to have been done, including the time lost in getting up speed, running up the Camden Town incline, and in coming to a state of rest at Tring, in 38 min. 11 sec., or at an average velocity from station to station of 50 miles per hour. Deducting the 2 min. 2 sec. lost at Tring, and the 8 min. 15 sec. at Leighton, the running time was 1 hour 2 min. 6 sec. for the 52½ miles. But the *London* would have done better even than this, had she not been obliged to run with great caution over some portions of the line between Tring and Leighton, where large numbers of laborers are engaged on the permanent way. Mr. Maddigan, of the London and North-Western

Company, and M. Audibert, one of the engineers of the French Government, rode on the engine, and both expressed themselves in high terms of its great steadiness at its highest velocity. We have no doubt that some one of the new narrow-gauge engines, now in the course of construction, will equal the workings we have given above of the *London*, but we question whether they will be quite so free from jumping, and unpleasant, not to say dangerous, oscillation. If the road to Wolverton were clear, Crampton's engine, would, we think, take 50 tons over the 53 miles in from 58 to 60 minutes!

We should like to see the *London* take the 10 o'clock morning express mail with a load similar to that taken by the *Snake* on the 28th of August—viz., 14 carriages. We think the *London* would find it a difficult matter to perform a better average working—we question whether she would equal the average then maintained with 70 tons. The *Snake*, on that occasion, maintained an average velocity of between 45 and 40 miles per hour from the 4th to the 31st post—a first rate working, with a 15-inch cylinder, and up an average rising gradient of about 14 or 16 feet per mile.

#### Atmospherical Railway on a New Plan.

The following description is taken from the London Mining Journal, and is given by the Editor, as the result of his own observation, or we might pass it by as one of the many schemes put forth by ingenious men, more useful in theory than in practice—but as he was much better able to understand it from the working model than from the drawing; so may we be, when we see it at work, than we are now after reading his description of it. It may, however, be more readily understood by our readers and we therefore lay it before them.

**Novel Mode of Pneumatic Railway Transit.**—We have during the week, had an opportunity of inspecting a model, descriptive of a novel mode of propelling carriages on railways, which, although in the specification and diagrams we had previously seen appeared complex, and even, as we considered, perfectly "utopian," does, we must confess, show a very different complexion when thoroughly investigated and the model seen in action. The principle, though dependent on the power of the atmosphere, must not be classed with any of the previously-described plans—all of which, more or less, are based on the longitudinal opening system; the merits and superiority of which, of course, lie in the best method of obtaining a perfect close joint, and which has, doubtless, been most successfully accomplished by Clarke and Varley, in their very perfect and simple arrangements, which we have so often described and remarked upon, on previous occasions; and which, we still feel confident, are capable of doing all which we have ever given credit for, and all the patentees ever claimed for their elastic tube system. The great object of the inventors of the system under notice has been, to mature a plan for superseding the expensive and dangerous locomotive engine, by substituting one which, while it combines great speed, little friction, perfect safety, and every detail connected with it un-

der the most complete command, should be capable of embodying the whole force of the moving power in the propulsion of the train; and thus establishing a system of economy, which the most earnest supporters of the locomotive engine could never dream of.—How far they have succeeded will be best judged of by an inspection of the model and drawings; to us, it certainly appears that they have obtained, in a most eminent degree, all those great essentials to railway transit, and that their plan is another link in the chain by which the mind is bound to the opinion, that "railways are yet in their infancy." In attempting a description of this ingenious contrivance, we would first observe, that the principle is absolutely that of the locomotive reversed, inasmuch that, instead of the engine acting directly on the driving wheels, and thus requiring an enormous amount of weight, and consequent friction to obtain the necessary grip, or bite, on the rail, they have made the driving wheels stationary, and placed them in such situations, that they take hold of the train as it advances; and, however absurd it may appear, without investigation, we have no hesitation in saying that, on a line in good condition, from London to Birmingham, with four stationary steam-engines of moderate power, a train once started, would arrive safe at its journey's end without further human intervention—it being, in fact, the absolute agent of its own motion, although not the prime mover.

The model, which is now open for public inspection, is a circular platform, 14 ft. in diameter, on which are laid a double line of rails of about 7½ in. gauge, or on a scale of one-eighth, or 1½ in. to the foot, compared with a proper working line; the carriages, and every part of the model are, of course, in the same proportion. Around the inner circle of this platform is laid a pipe of three-quarters of an inch in diameter, which is carried down to the basement story of the house, where it is connected with a pair of air-pumps, worked by a small steam-engine, which, when in operation, keeps up continually sufficient vacuum for the purpose of propelling the trains. It is in this continuous vacuum that the whole principle and its novelty consist.

Before proceeding further, we will endeavor to make our readers acquainted with what the patentees call an *air-engine*; but which we think would with much more propriety be termed a *vacuum-engine*. It consists of a cylinder, with piston and double-action valves, precisely similar to those of a high-pressure steam-engine, but of the greatest simplicity, as a crank and pulley, attached to the top of the piston-rod, is all the machinery connected with them. A pair of these is placed at three different points on the model, which represent 100 yards between each in actual practice, or 18 pair to the mile; they are placed in connexion with the vacuum tube, and, by opening a valve, are immediately set in motion by the external pressure of the atmosphere on the piston.—Between each pair of vacuum-engines are placed three horizontal wheels—one on each



side, and one in the centre—all three being connected, and put simultaneously in motion by the engines already described, of such dimensions, that their peripheries range are exactly even with the rails; the valves for connecting, or cutting off, the passage from the vacuum tube to the side engines, are regulated by levers, on the end of which are small friction rollers; and at stations there will also be an arrangement for regulating by an attendant in addition. Along the whole line of carriages outside the wheels, are placed wooden rails, connected by tubes, passing under the carriages, in which tubes are spiral springs; and, by a longitudinal bar passing under every carriage, and connected together, the guard can, by a screw lever in the front, with the greatest facility, increase or lessen the distance between these wood rails. This part of the invention is highly ingenious, and of the utmost importance to the principle; but can hardly be explained without a drawing. The rails are on a level with the horizontal wheels.

At the termini, it is proposed to have two pairs of vacuum engines, to give a greater momentum at starting. The *modus operandi* is as follows:—We will suppose the guard carriage of a train to be placed between the first set of horizontal wheels at the terminus of a railway—the steam engine regularly working—sufficient vacuum obtained, and the word given "all right," the attendant immediately opens the communication to the vacuum engines, which immediately set the horizontal wheels in motion, and the train is propelled by the tight grip which the horizontal wheels have on the side rails of the carriages, with sufficient momentum, let it be ever so short to carry it to the next pair of vacuum engines. The ends of these side rails are so arranged, that they form incline planes, and then pass on to the friction rollers, and press down the levers, which open the communication with the vacuum engines; these immediately set in motion their set of wheels, give fresh momentum to the train, which rushes on to the next pair, and so on throughout the line; an incline plane on the rails of the last carriage presses down each lever of the vacuum engines after they have done their work, and cuts off the communication. When the guard wants to go slow, or stop, he has only to contract the wooden rails, when the grip on the horizontal wheels being taken off, the motion slackens, and by putting on his break he stops. During the experiments we witnessed, the mercury generally indicated a pressure of about 5 lbs. on the inch.

One great advantage exists, that by the motion of a lever at a station, which reverses the action of the horizontal wheels, trains can be backed with the greatest facility. On a railway it is proposed to have a copper tube, of about 10 lbs. weight to the yard, and corrugated at certain distances to give it strength, which will be laid under ground, outside of the rails, the entire length of the line, and, of course, connected at every hundred yards with the vacuum engines. It will be seen that, by employing a close tube, sim-

ilar to a gas pipe, no leakage can occur from a defective longitudinal valve; and, as the number of the strokes of the pistons of the vacuum engines will always be in proportion to the length of the train, the interruption to the vacuum, and the only one, can be calculated to a nicety. Another fact, and a curious one, in connection with this system is, that no matter how long, or how short a train, there will always be a proportional amount of power for its propulsion—for, whether 20 or 90 yards long, it will receive sufficient momentum to be carried to the next propellers; if a little above 200 yards, it will have three pair in action at once; and, if even a mile long, it would then have 18 pairs. Here, also, there is no piston in the tube, or work hidden from sight, and difficult to get at in case of repairs. An injury to one vacuum engine is of no consequence, as each move a whole set of horizontal wheels; and, as a stock of every material would, of course, be kept in duplicate, another engine would be clapped on, and the injured one moved to the workshop for repair. With respect to expense, it might, at first sight, appear, that the system was complex, and, consequently, only to be established at great cost—when, however, it is remembered that very light rails would be amply sufficient, that the copper tube could be obtained at about 10s. per yard, the vacuum engines and horizontal wheels, being simple and inexpensive, and made in large numbers, would not be costly, and that few and small steam engines would do all that could be required, it will be seen that a line on this system could be laid down on very economical terms; in fact, the patentees, Messrs. Cunningham and Carter, would undertake to lay down a double line of rails, with every item prepared for the running of the trains, for 4000l. per mile.

#### CRADDOCK'S IMPROVED LOCOMOTIVES & STATIONARY ENGINES.

We find in the Mining Journal, for September 18th, the following remarks—accompanied by a cut of a locomotive—in relation to improvements said to have been made by Mr. Craddock upon the steam engine. We omit the cut, and the paragraph describing it more particularly, and give now only such portions as speak of it in general terms—but may hereafter, when we hear more of it, give the cut and details.

**Craddock's Patent Universal Condensing Steam Engine.**—We have, on former occasions, noticed several improvements in the steam engine, patented by Mr. Thos. Craddock, of Birmingham, and we have now before us a pamphlet, descriptive of some further patented arrangements, by which the whole is much simplified, and rendered more available and economical. They are illustrated by 10 elaborately detailed diagrams, showing how the entire improvements may be rendered available to every kind of engine—stationary, marine or locomotive. It may be remembered, that the principal part of Mr. Craddock's improvements consists in his mode of condensing the steam, and returning the water to the boiler—thus causing a continual and freer circulation between it and the en-

gine; and for situations, in particular, where water is scarce, the importance of this circumstance alone must be appreciated by every engineer. The patentee calculates that a forty-horse power engine can be worked with 20 gallons of water, while the non-condensing engine requires 4000 gallons per day; the Cornish engines, 16,800, and a Boulton and Watt engine, of the same power, for steam and condensation, 78,400 gallons per day.—The leading features of the system it will be seen, are—the furnishing the means requisite to the fullest development of the expansive powers of steam, and enabling it to be condensed, in all situations, by water, where it is obtainable, and, where not attainable, by the atmosphere; in short, a modification of Wolff's engine—combining, in every shape, simplicity, compactness, and an extraordinary degree of economy. The diagram, at the head of this article, is descriptive of the application of the air condenser to a locomotive engine, with angular set cylinders, and the two connecting rods taking hold of one driving wheel on each side. The condenser is seen in front and consists of a number of vertical tubes, formed by connecting plates, at top and bottom, into one whole cylinder; this is made to revolve at a rapid rate, and thus presents every part of the tubular surface to continually-changing and fresh currents of cold air, by which rapid condensation takes place.—The steam is admitted at the top of the condenser, and, as the water from the condensed steam falls to the bottom, it is taken up by a small pump, and forced into the boiler—scarcely any waste thus taking place, and securing the extraordinary results above mentioned.

There is, of course, in this, as in the locomotive engine we have described, a high and a low pressure cylinder. The steam is employed by Mr. Craddock at 100 pounds pressure to the inch, and then expanded to six times its volume before condensation—the steam chest, boiler and apparatus, being made proportionally strong; and on this highly important point we cannot do better than give the inventor's own words. He says:—"But here comes that bug-bear, which has so long frightened mankind from a dispassionate use of steam at such pressure—viz: its danger. It is high time that scientific men should, at least, grapple with this delusion, and calmly consider whether, with such boilers as are here submitted, such pressure is not only as safe as the pressure now used in the common boilers, but very much safer than any, even low pressure boilers—while it is demonstrable that 1lb. of coal will produce sevenfold the mechanical effect to that which would result was the steam used without expansion." After minutely describing the whole 10 diagrams, containing various descriptions of engines, with his improved steam valve, with and without steam box, air pump, and stop off valve, which we cannot clearly demonstrate without the diagrams, which are too numerous for our columns, Mr. Craddock gives a series of six tables, illustrative of the economy and large amount of power obtained by working the steam expansively on the high

pressure system. The results brought out are startling—showing, in marine engines, a saving of fuel per 1000-horse power per annum, supposing eight voyages to be made, in that period between Liverpool and New York, of 7052 tons, and a further saving, in pounds sterling, from increased tonnage, for merchandise, of £49,200 per annum—making a total saving, per 1000 horse power per annum, of £57,649, and per 100,000-horse power, for the like period, of £5,764,900. In locomotive engines the saving would be enormous. Mr. Craddock calculates that the saving effected on £346,800, being the cost of coke on the railways open in 1845, would amount to £286,487, or 82½ per cent., and on the whole locomotive expenses, 20 per cent. This would give an increased available dividend of 15s. on every £5; and, if to this be added the increased economy generally, which would arise from the use of the system, the saving would increase the value of such railway property *one fifth*! These results, if founded on practice, are most important to capitalists, shareholders, and all connected with the steam engine; and as Mr. Craddock has, for a number of years, devoted his energies to the principles and improvement of its machinery in general, we have no reason to doubt the correctness of his conclusions. The pamphlet should be in the hands of every engineer.

#### A New Rotary Steam Engine.

We visited the new Steam-Engine known as Schenck's Rotary, now in operation at "the Archimedes Works" of Dunham & Browning, in North-moore near Washington. The Engine was regularly at work driving powerful machinery, and, though built for twenty-five, is found to be practically of forty-horse power. To say that any invention is perfect would be rash; but, having seen this operation in various ways beside that in which it was regularly employed, we are convinced that it possesses these advantages over the ordinary engine:

1. The Rotary motion is original and complete, without any waste of power or possibility of interruption like the "stopping on the centre" well known to all who work with steam.

2. This Engine occupies not more than one-third the room required by the old ones.

3. It is less than half the weight of an ordinary engine of equal power—a vital consideration in steamboats, on railroads, etc.

4. It requires much less fuel—a fact of great importance in view especially of the rapid extension and increase of Ocean Steam Navigation.

5. It costs considerably less money than any other engine of equal capacity.

This last is a circumstance quite adverse to what is usual. Generally, when a machine is invented to save labor or fuel, or to increase power, it must encounter the drawbacks of increased cost. Manufacturers and operators of machinery are weary of looking at inventions, which promise to save them so many hundred dollars per year, but require an immediate outlay of perhaps thousands to effect it. But here is an invention which

economises not only in future but first cost, giving treble power from the same weight of metal and on the same area of space, while you have less to pay for it than for any other of equal force. There can be little doubt that it will rapidly supersede all others; indeed, we cannot see why an old-fashioned Engine should ever more be ordered or constructed by one who has examined this.

We cannot describe this engine so that it shall be understood without diagrams by the reader. It consists in good part of a moving cylinder inside of a stationary one, the steam passing into the former and being employed to turn the latter by means of great simplicity and directness, so as to effect an immense saving of contrivances and gim cracks hitherto found necessary to convert the straightforward pressure of the steam into the momentum of a rotary motion. All persons interested in Manufactures or Machinery, or who expect to be so, should examine this Engine without loss of time.—*Artisan.*

*Delaware, Lehigh, Schuylkill and Susquehanna Railroad Company.*—This company, pursuant to the directions of the act of assembly, held an election for officers on Thursday, the 21st inst., in Easton, which resulted as follows: President, James M. Porter.—Managers, Dudley S. Gregory, John S. Darrey, John P. Jackson, Daniel McIntyre, John N. Hutchinson, and Edward R. Hiddle.—Treasurer, Robert L. Schuyler. Secretary, John N. Hutchinson.—*N. A. & U. S. Gaz.*

**GILLESPIE'S WORK ON ROAD MAKING.**  
A Manual of the Principles and Practice of Road making, comprising the Location, Construction and Improvement of Roads, (Common, Macadamized, Paved, etc.), and Rail Roads, by W. M. Gillespie, Professor of Civil Engineering in Union College. Published by A. S. BARNES & CO., 51 John St., New York.

LINDSAY & BLAKISTON } Philadelphia.  
GRIGG, ELLIOT & CO., }

#### RECOMMENDATION FROM PROFESSOR MAHAN.

"I have very carefully looked over Professor Gillespie's Manual of Road Making. It is, in all respects, the best work on this subject with which I am acquainted; being, from its arrangement, comprehensiveness and clearness, equally adapted to the wants of Students of Civil Engineering, and the purposes of persons in any way engaged in the construction or supervision of roads. The appearance of such a work, 30 years earlier, would have been a truly national benefit, and it is to be hoped that its introduction into our seminaries may be so general as to make a knowledge of the principles and practice of this branch of engineering, as popular as is its importance to all classes of the community.

(Signed,) D. H. MAHAN,  
Professor of Civil Engineering in the Military  
Academy of the United States."

**TO RAILROAD CAR BUILDERS.**  
SEALED PROPOSALS will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for the construction of 30 HOUSE CARS, for freight, 2 BAGGAGE CARS and 2 MAIL CARS, according to plans and specifications which will be furnished, and for which proposers are referred to the Master of Machinery, at the Company's Mount Clare Depot, Baltimore, who will be prepared to exhibit them on and after the 25th current.

The House Cars to be delivered by the 1st of February, 1849; the Baggage Cars by the 1st of December, and the Mail Cars by the 15th of December next. BENJ. H. LATROBE, Chief Eng. & Gen. Supt. Baltimore and Ohio Railroad.  
Office No. 23 Hanover St., Baltimore.

**TO LOCOMOTIVE ENGINE BUILDERS.**  
Proposals under seal will be received by the undersigned up to SATURDAY, the 6th of November, inclusive, for furnishing the Baltimore & Ohio Railroad Co. with 4 LOCOMOTIVE ENGINES, in conformity with the following specification:—

1. The weight not to exceed 20 tons, of 2240 lbs., and to come as near to that limit as possible.
2. The weight to be uniformly distributed upon all the wheels, when the engine is drawing her heaviest load.
3. The number of wheels to be eight.
4. The diameter of the wheels to be 43 inches.
5. The four intermediate wheels to be without flanges.
6. The boiler to contain not less than 1000 square feet of fire surface, of which there shall be not less than one-fifteenth in the fire box.
7. The tubes of No. 11 flue iron, with not less than ¼ of an inch space between them in the tube sheets.
8. The fire box with the exception of the tube and crown sheets to be of ¾ inch copper.
9. The tube sheets to be 1 inch thick.
10. The boiler to be of No. 3 iron, of the best quality.
11. The fire box to be not less than 24 inches deep below the cylindrical part of the boiler.
12. The steam to be taken to the cylinder from a separate dome on the fore part of the boiler.
13. The frame, including the pedestals, to be entirely of wrought iron, and the boiler to be connected therewith, so as to allow of contraction and expansion without strain on either.
14. The cylinders to be 22 inches stroke, and not less than 17 inches diameter.
15. The cut off to be effected by a double valve, worked by separate eccentricities.
16. The angle of the cylinder to be not greater than 13½ degrees with the horizontal line.
17. The frame and bearings to be inside the wheels and the direction from the cylinder direct with the back pair of intermediate wheels.
18. The centres of the extreme wheels to be not more than 11½ feet apart.
19. The wheels to be of cast iron with chilled tire.
20. The means to be provided of varying the power of the exhaust in the blast pipe.
21. The engine to be warranted to do full work with Cumberland or other bituminous coal, in a raw state, as the fuel—and the furnace to be provided with an upper and lower fire door with that view.
22. The smoke stack to be provided with a wire gauze covering.
23. Two safety valves to be placed upon the boiler, each containing not less than 5 square inches of surface and one to be out of the reach of the engine-man.
24. The tender to be upon 8 wheels and constructed upon such plan as shall be furnished by the company, and to carry not less than 3 cords of wood or its equivalent in coal, and 1500 gallons of water.
25. The materials and workmanship to be of the best quality, and the engine to be subjected to a trial of 30 days steady work with freight upon the road, before acceptance by the company.

Payment to be made in cash on the acceptance of the engine. The four engines to be delivered at the company's Mount Clare depot, in Baltimore—the first on the 1st of February, 1849, and the three others on the 1st of March, April and May, ensuing.

The track is 4 feet 8½ inches gauge, and the shortest curve of the road is 400 feet radius. The company to be secured against all patent claims.

Further information will be communicated upon application to the undersigned, at the company's office, No. 23 Hanover street, Baltimore, to which the proposals suitably endorsed will be addressed. By order of the President and Directors,  
BENJ. H. LATROBE,  
Chief Engineer and General Superintendent.  
Baltimore, Sept. 18th, 1847.

2143

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to  
FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 4, 1847.

1046



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**  
Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.  
Hamilton, July 30, 1817. 3m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 19 feet long, capable of sustaining pressure from 600 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse B. E. Corner of Third & Walnut Streets,  
PHILADELPHIA.

**SPRING STEEL FOR LOCOMOTIVES,**  
Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
1y Albany Iron and Nail Works,

**RAILROAD IRON.—400 TONS ENGLISH,**  
60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

DAVIS, BROOKS & CO.,  
1m37 68 Broad Street, New York.

**FOR SALE—300 TONS (10 MILES) FLAT**  
Bar Rail, in parcels or wholesale—section 2 1/2 inches wide by 3/4 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,  
1m37 Wilmington, Del.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

**PASSENGERS, SPECIE, GOODS, PARCELS, &c.**  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise.] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m ROBERT GRACIE.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 322 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tilters &c., by  
JOHN A. ROEBLING, Civil Engineer,  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.  
92v117

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinkley & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

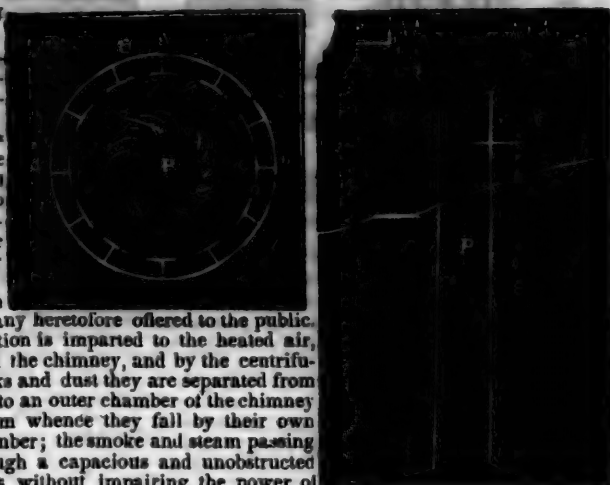
**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.  
Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

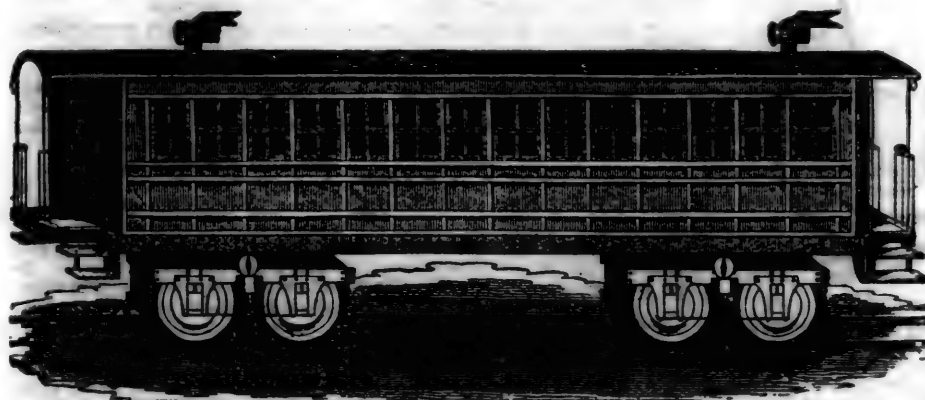
Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
a45 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trestles are 5 feet from centre to centre, while in the new construction they are only 3 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trestles, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trestle for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,324 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,350 lbs. at 4 1/2 cts =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**  
Civil Engineer and Patentee.  
No. 277 South Third St., Philadelphia. 321f

### LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

23 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

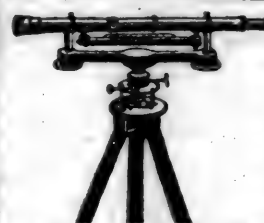
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

**ENGINEERS' AND SURVEYERS'**  
**INSTRUMENTS MADE BY**  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

**ANDREW MENEELY.**

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
124f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,** Agents.

1y48

77 Pine St., New York.

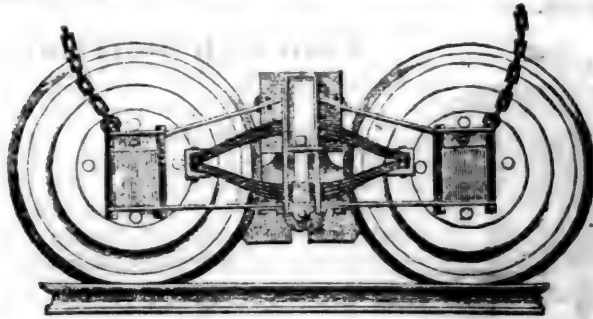
**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Seor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**

75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	Tons.
11	4	13 5	10	21 -	50	15-16		20
13	3	9 3	8	16 -	27	11-16		13
14	3	6 11	7	12 8	17	9-16		10
15	2	5 2	6	9 4	13	1-3		7
16	2	4 3	6	8 8	10	7-16		7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron; all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLCOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

1y25

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,]

T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,]

JOHN LEACH,

Jamaica November 12, 1845.

1y19

Sup't Motive Power

**THE SUBSCRIBERS, AGENTS FOR** the sale of

Codorus,

Glendon,

Spring M. and

Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER, & CO.,**

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel;

Junia rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,** 245 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS:** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip,

1y10

New York.

# NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder, x 20 inches Stroke.
"	2,	14 " " " x 24 " "
"	3,	14 1/2 " " " x 20 " "
"	4,	12 1/2 " " " x 20 " "
"	5,	11 1/2 " " " x 20 " "
"	6,	10 1/2 " " " x 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

- James P. Allaire, } New York.
- Peter Cooper, }
- Murdock, Leavitt & Co. }
- J. Triplett & Son, Richmond, Va. }
- J. R. Anderson, Tredegar Iron Works, Richmond, Va. }
- J. Patton, Jr. } Philadelphia, Pa.
- Colwell & Co. }
- J. M. L. & W. H. Scovill, Waterbury, Con. }
- N. E. Screw Co. } Providence, R. I.
- Eagle Screw Co. }
- William Parker, Supt. Bost. and Worc. R. R. }
- New Jersey Malleable Iron Co., Newark N. J. }
- Gardiner, Harrison & Co. Newark, N. J. }

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear- ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 245 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** 4 South Front St., Philadelphia.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART,**  
12 Platt street, New York.  
**JOB CUTLER,** Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 281f

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz: 180 tons 2 1/2 x 1/2 inch Flat Punched Rails, 30 ft. long. 25 " 2 1/2 x 1/2 " Flange Iron Rails. 75 " 1 x 1/2 " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 11f

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

**REEVES, BUCK & CO.,**  
Philadelphia.  
**ROBERT NICHOLS, Agent,**  
No. 79 Water St., New York. 261f

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own condition of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 119 Fulton street, New York. 281f

**J. BALL & CO.**

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between the two roads, will run as follows, viz: Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**

**PATERSON RAILROAD** Summer Arrangement. Commencing April 20th, 1847, the cars will leave Paterson at New York at 8 o'clock a.m. 9 1/2 o'clock a.m. 11 1/2 o'clock a.m. 12 1-4 o'clock p.m. 4 o'clock p.m. 5 1/2 o'clock p.m. On Sunday. 8 o'clock a.m. 9 1/2 o'clock a.m. 4 o'clock p.m. 5 1/2 o'clock p.m. Office 75 Courtlandt St. 251f





**BALTIMORE AND OHIO RAILROAD.**  
**MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 26 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 19 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**  
Fall and Winter Arrangement, 1847. On and after Monday, September 20th,

until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Millford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Cincinnati at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, in 32 hours. Distance from Cincinnati to Springfield by railroad.....81 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....33 "

From Bellefontaine to Sandusky city by railroad.....103 "

**FARE**—From Cincinnati to Lebanon.....\$1 00  
" " " Xenia.....1 50  
" " " Springfield.....2 00  
" " " Columbus.....4 00  
" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a package for every \$500 in value over that amount.

W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....5 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½

Way points in proportion.

**PITTSBURGH, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35½

**CENTRAL AND MACON AND WESTERN**  
Railroads, Ga.—These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....190 Miles.  
Macon to Atlanta—Macon and Western.....101  
Atlanta to Oothcaloga—Western and Atlantic... 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs. 35	
Crockery, per cubic foot.....	0 15 "	35
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large), Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846.

**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.  
On measurement goods.....13 cts. per cubic ft.  
On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Supt. Transportation.

**SOUTH CAROLINA RAILROAD.—A**  
Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**  
Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1½

**NEW YORK AND PHILADELPHIA**  
Railroad line—direct. Via Newark, New Brun-

wick, Princeton, Trenton, and Bristol. (Through in

six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Saturdays only at 10 p.m.—being a continuation of the line from New York.



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	93	\$3.50 and \$3.00	
" " Reading,	58	2.25 and 1.90	
" " Pottsville	34	1.40 and 1.20	

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 p.m. No line on Sun. Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 a.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hoghead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 63	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,  
Supt. of Transportation.

Augusta, Ga., July 13, 1847.

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## RATES OF FREIGHT

In CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	1.25	1.54	1.05	0.81	0.66
Between Augusta and Knoxville & intermediate points.	0.22	1.54	1.10	0.75	0.61
Between Chattanooga and Decatur and intermediate points.	0.34	1.70	1.15	0.85	0.90
Between Chattanooga and Knoxville & intermediate points.	0.24	1.70	1.20	0.80	0.85
Between Charleston or Savannah and Decatur and intermediate points.	0.32	1.90	1.35	1.05	1.10
Between Charleston or Savannah and Knoxville & intermediate points.	0.32	1.90	1.40	1.00	1.05
Between Chattanooga and Decatur and intermediate points.	0.32	1.90	1.40	1.00	1.05
Between Chattanooga and Knoxville & intermediate points.	0.32	1.90	1.40	1.00	1.05
Between Chattanooga and Decatur and intermediate points.	0.32	1.90	1.40	1.00	1.05
Between Chattanooga and Knoxville & intermediate points.	0.32	1.90	1.40	1.00	1.05

1st class.—Boxes of Hats, Bonnets and Furniture per foot.  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovel, Spades, Scythes, Smiths' Ballows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs.  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casts, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.  
Per 100 lbs.

Merchandise shipped from any of the Southern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.; and every package must be marked, care of B. CHANDLER, Chattanooga.

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He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

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Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 60

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D. K. MINOR.

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105 Chestnut Street,

PHILADELPHIA, PA.

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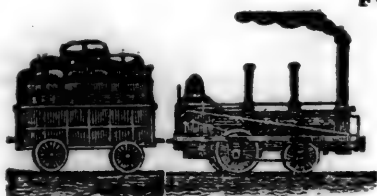
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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 45]

SATURDAY, NOVEMBER 6, 1847.

[WHOLE No. 594, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, November 6, 1847.

### Depot at Keene.

A superb building for a depot of the Cheshire Railroad is nearly completed at Keene, N. H. This road, from the Fitchburgh Road to Keene, is to be completed this year—and to Bellow's Falls early next year—or in time to meet the Rutland road, which we understand is progressing fairly.

### Vermont Central Railroad.

The Central Vermont Road from Hartford, or mouth of White River, Vt., is to be completed to Northfield, about fifty miles, early next season; and then, we presume, the Connecticut River Road, from Bellows' Falls to Hartford, thus connecting the Cheshire Road and the Central Vermont Road.

### Concord and Lebanon Railroad.

The Road from Lebanon, N. H., to Concord, will probably be completed early next year—when there will be an uninterrupted line from Boston to Northfield, Vt., and in a little time after it will be completed to Burlington.

### Rutland Railroad.

The Rutland Road may not be completed quite as soon as the Central, but it will probably not be far behind it in reaching Burlington.

### Connecticut and Passumpsic Railroad.

The Road, in continuation, from the mouth of White river to the mouth of the Passumpsic, will, we are quite sure, be pushed on with the least possible delay—and from thence in the direction of Canada line, the work is progressing rapidly. The energy and spirit evinced by the people of

New Hampshire and Vermont—since they have been aroused to the importance of railroads—is worthy of all praise.

### Another Railway Project in the West.

A public meeting has been held at Winchester, Randolph county, Indiana, to forward a Railway from Indianapolis to Bellefontaine, Ohio: Great interest was manifested in the proposed route, and the opinion was expressed that the citizens of Randolph county alone, were able without cramping themselves, to construct the road through their county. That is the way to get along—true go-aheadiveness.—*Cin. Gaz.*

### Pittsburg and Cleveland Railroad.

At the annual meeting of the stockholders of the Cleveland and Pittsburg railroad company, held in Wellsville on the 18th instant, the following named gentlemen were elected directors of the company for the ensuing year:

James Farmer, Salineville; Charles Knapp, Jr., Pittsburg; Samuel Williamson, Cleveland; Henry N. Day, Hudson; Cyrus Prentiss, Isaac N. Brayton, Ravenna; James Aien, Henry Cope, D. T. Lawson; John S. McIntosh, James Stewart, Alexander Wells, Wellsville.

The board organized by electing James Farmer, president; Cyrus Prentiss, treasurer; James Stewart, local treasurer; and A. G. Catlett, secretary.

The board resolved to put the grading, masonry, and preparing for superstructure of the whole line of road, from the point to which it is now let to Hudson, under contract as soon as the engineers can prepare it, passing through Freedom, Lima, Atwater and Ravenna, on a line as near that already surveyed as the interest of the company will permit.

We copy the above, says the Pittsburg Gazette, from the Wellsville Patriot, from which we also learn "that the whole line is to be put under contract as soon as the engineers can prepare it for letting to Hudson, a point within 24 miles of Cleveland. This remaining 24 miles seems to be allotted to the wealthy and flourishing city of Cleveland to make."

We took occasion, some weeks since to notice the determined progress of the company having the above road in charge. It is due to these gentlemen to say that they have worked against all possible discouragements. With full faith in their own enterprise, and a manly action to back it, they are going ahead with the determination of linking the Ohio with the

lakes. There is no such word as fail, when an enterprise is thus sustained. We wish the new directors all possible success, and hope and believe that their labors will be rewarded with good dividends, and the honor and respect of the country.

### Corrugated Car Wheels.

The New York Tribune made a small error in its report of premiums awarded by the American Institute to A. Whitney & Son for "Consolidated Water Wheel,"—and the Mining Journal fell into the same error in copying from the Tribune. The wheel referred to, and for which a premium was awarded, is of cast iron for railroad cars, and is termed "corrugated," from the wavy, or wrinkled, form of that part between the hub, and felloe, and tread of the wheel—instead of spokes, or a flat surface, as in most other cast iron wheels.

The first wheels of the kind that fell under our observation were upon the coal cars of the Reading railroad, but they were cast in two parts—by casting the wheel without the hub, and then casting the hub onto the other part—in order to obviate the difficulty of the unequal contraction of the iron, caused by the chill. In this way a wheel is made without the openings in the hub, and consequently cheaper than those with the zink and rings, which occasionally work loose and require repairs. From what we saw of the corrugated wheel—cast in two parts—we were apprehensive that there was not sufficient strength at the place of joining—though we were informed by those who had experience, that they were found to possess ample strength.

The "corrugated wheel, of Messrs. A. Whitney & Son," exhibited at the Fair, and receiving the medals, of the American Institute, is cast in one piece, and requires only boring out to be ready for the axle, and from experiments made is found, from their peculiar mode of making wheels, to be entirely free from the strain arising from the ordinary mode of casting wheels whole on a chill. The peculiarity of their process we understand to be in cooling their wheels in a hot oven, or furnace—by which every part of the wheel is kept at a uniform temperature until the whole is cold. Ten or twelve wheels, while red hot from the mould, are put into this oven, or furnace—which is about four feet in diameter and seven feet deep, with a moveable cover—heated to a high temperature, where they remain 36 to 48 hours, the whole mass cooling down gradually. Our first impression was, that the heat of this furnace would im-



pair the chill, and so expressed ourselves, but were informed to the contrary, and examined fragments of wheels which had been broken to test their strength and quality of iron, which apparently retained the chill perfectly.

Messrs. Whitney & Son have made numerous experiments upon various kinds of iron, for the purpose of arriving at useful and profitable results in the manufacture of car wheels, a branch of business in which they are now engaged; and those who have known the seignor of the firm, whether as manager of railroads, or canal commissioner in the State of New York, or as one of the late well known firm of **BALDWIN & WHITNEY**, locomotive engine builders, will not doubt of their ability to furnish as good an article as any other manufacturer in the country, aside from any peculiar merit which their new form and mode of manufacture may possess.

We understand that they offer to furnish a set of their wheels to any road without charge, or expense to the companies, unless they prove to be what they are represented.

#### Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, October 28, 1847.

	Tons. cwt.
From Port Carbon.....	10,294 05
“ Pottsville.....	4,573 05
“ Schuylkill Haven.....	12,814 04
“ Port Clinton.....	3,622 09

Total for week..... 31,304 03  
Previously this year..... 1,109,883 16

Total..... 1,141,187 19

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending October 28, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	7,667 13
Schuylkill Haven.....	2,408 15
Port Clinton.....	00 00

This week..... 10,076 08  
Previously..... 184,682 19

Total..... 194,759 07

#### Massachusetts Railroad Stocks.

The following quotations of Railroad Stocks are from the Boston Shipping List. They show a high estimate of the value of railroad investments—in Massachusetts. Sales at the Brokers' board on the 23d and 25th October, were as follows—

	October 23.
Western Railroad.....	113
Northern Railroad.....	103
Fitchburgh Railroad.....	125½

#### AT THE SECOND BOARD.

Roston & Lowell Railroad.....	582½
Nor & Wor Railroad, a 30 ds.....	40½
do do.....	40½
Eastern Railroad.....	110

#### October 25.

Western Railroad, a 19 mos.....	113½
Fitchburgh Railroad.....	126
Boston & Prov Railroad.....	105
Reading Railroad.....	28½

Such has been the unlooked for success of the Western Railroad, by way of Springfield and Pittsfield to Albany, that measures are being taken, as we perceive by the papers, for the construction of another line to the Hudson, and in continuation of the Fitchburgh road. Should this enterprise be successful, the Green Mountains—which a few years since were deemed impassable by locomotives—will be crossed by no less than four lines of Rail-

road—and probably by five—within a half dozen years.

The North-Adams Transcript says: “The attention of our community is very much awakened by the project of a railroad, in connection with the Fitchburgh Railroad, from Greenfield to Troy, by our village, forming a new and superior route from Boston to the Hudson river. Hoosac mountain is the only obstacle in the way of a road between those termini, thirty miles shorter than the Western road, and with no grade exceeding forty feet to the mile; while that road goes over a mountain 1400 feet high, on a grade of over eighty feet to the mile. The practicability of a tunnel through Hoosac mountain is now fully established. Engineers have been for some time on the route, and the indomitable energy of the Fitchburgh Corporation is felt along the whole line. Great anxiety is manifested about obtaining a charter.”

#### Railroad.

“Jonathan Knight, Esq., the well known engineer by whom much of the National road was located, has been engaged for the last two or three weeks in examining the country between Wheeling and Zanesville, with a view to determine its general features, preparatory to an accurate survey. Doubts have been entertained with regard to the possibility of obtaining a route, without departing very much from a direct line, and of course increasing the distance; but Mr. Knight reports favorably, and states that the cost of construction will be much less than was anticipated. He thinks a route can be obtained to approach Zanesville by way of Millrun, which will be in some respects desirable. From Zanesville, westward, no difficulty has been anticipated, in the matter of finding a cheap and practicable route.”—*Zanesville Courier*.

We recognise, in the gentleman here named, one of the pioneers, and a veteran, of the profession.—Mr. Knight was, we believe, the chief, or a principal engineer on the National road—on which work he established a reputation that secured for him the appointment of chief engineer of the Baltimore and Ohio railroad—to which work he devoted himself for many years. It was, if we recollect right, in 1842 that he retired from that work; since which period we have seldom heard of him, and it is therefore with the more satisfaction that we again hear of him in the field.

#### Railroads in Maine.

Extract from a letter dated “Portland, October 29, 1847.” The writer says: “We are about starting another railroad in this State, commencing at Portland, and extending westerly through Goreham and Boston, and crossing the State of New Hampshire in the general direction of Burlington, probably connecting with the Meredith and the Northern road.

“This is a highly cultivated and rich district of country, and will afford a rich return to capitalists. The right spirit prevails among its friends, and I have no doubt that it will be commenced in the Spring.

“The State of Maine is determined ere long to take her place among the foremost of her sister States in railroad improvements. Possessing more seacoast, more harbors, greater length of rivers, and more territory than all the other New England States, she must, at no distant day, attain a corresponding position in relation to her railroads.”

The route for a railroad here pointed out is to us entirely new—but we can readily see that its construction will be of great importance to Portland. The distance direct from Portland to Burlington is

not as great as from Boston to the same point, and a favorable route for a railroad may probably be found which will be shorter than the line via Concord, and the Central Vermont road. If so, it would come in for a share of the western trade, via the Ogdensburg road, which, with the way business on the line, and its proportion of the Passumpsic and Connecticut river valleys trade, will ensure rich returns upon its cost, and add largely to the business and wealth of Portland; we therefore wish God-speed to the enterprise.

#### Androscoggin and Kennebec Railroad.

The following interesting letter is in reply to one from us, asking information in relation to this road and its probable connections. It is dated—

LEWISTON, Oct. 25th, 1847.

Dear Sir,—Yours of the 12th instant was duly received, and, in accordance with your request, I send you the following account of our railroad.

The Androscoggin and Kennebec Railroad forms a part of a great interior line of railroad through the State of Maine, extending, as already chartered, from Portland to Bangor. The first 27 miles from Portland easterly, to Danville, is a part of the Atlantic and St. Lawrence Railroad, extending from Portland to Montreal. At this point, (27 miles from Portland,) the Androscoggin and Kennebec Railroad commences, and reaches the Androscoggin River at Lewiston, 6 miles farther east. Here is a fall in the river of 46 feet, affording a noble site for a manufacturing city, and it is destined ere long to be improved, a company for that purpose having been already organized, and holding the necessary lands and water privileges.

From Lewiston the Railroad extends eastwardly through Green, Monmouth, Winthrop, Readfield, and Belgrade, to Waterville on the Kennebec River. At Monmouth and Winthrop there is a considerable amount of water power upon the outlets of several large ponds flowing towards the Kennebec River. At Waterville the Ticonic Falls command the whole power of the Kennebec River, and for a distance of three miles above these, are several other falls and rapids, many of them not yet occupied. At Kendall's Mills, three miles above Waterville, is a large lumbering establishment in full operation. Besides the Kennebec River, Waterville also possesses many favorable sites for manufacturing, upon the Emerson Stream which enters the Kennebec a little below Waterville, and is the outlet of a chain of ponds or rather lakes, covering 75 square miles of surface. From the last of these, Snow's pond, to the Kennebec River, in a distance of about eight miles there is 200 feet fall. This stream is very little affected by freshets, and is never frozen over in the coldest winters. Probably few locations can be found affording so vast an amount of water power conveniently situated for use, in so small a district.

The whole length of the Androscoggin and Kennebec Railroad, from the junction with the St. Lawrence road in Danville to the Kennebec river is 55 miles. The whole road is now under contract, and operations have been going on upon the western half for some months. The road is to be completed to Winthrop, 26 miles, by the 1st of October, 1848, and to Waterville by the 4th of July, following. The excavations are not very heavy, the amount of ledge is small, and there is no reason to anticipate any delay in the progress of the work.

From Waterville to Bangor, a distance of between 40 and 50 miles, a charter has been granted to the Kennebec and Penobscot Railroad. This Company has not yet been organized, but when the railroad

west of the Kennebec river is completed, this character will not long lie dormant. The country east of the Kennebec river is very smooth, and promises one of the cheapest routes for a railroad ever found in the New England States.

A survey is now in progress for a branch of the A. and K. R. R., extending from Waterville, through Norridgewock to Anson, upon the Kennebec river, 25 miles farther north. This region comprises some of the best farming land in the State of Maine, and would bear comparison with the far-famed fertile prairies of the West. Water power is also abundant upon the Kennebec River and its branches. At no distant day, the road will be pushed still farther up the Kennebec River, and eventually will be carried to Quebec.

A railroad has also been chartered from Augusta on the Kennebec River, to Farmington on the Sandy River, about 30 miles in length. Several routes are spoken of for this road, but whichever of them is adopted, it must connect with the A. and K. R. R., and become a useful tributary to it.

Any other information you may desire in reference to the road, I shall be happy to communicate.

Yours very truly,

EDWARD APPLETON, Eng. A. & K. R. R.

#### Great Suspension Bridge in Hungary.

The stupendous bridge over the Danube, which is intended to unite the two important towns of Pesth and Ofen, is rapidly advancing towards completion. The land-piers, on each side of the river, are completed; and the two piers in the bed of the river will be ready for the chains by next spring. The chains for this stupendous bridge are being manufactured in England, and will in a short time be forwarded to their destination. The extreme length of the bridge is 1200 feet (the width of the river at Pesth); the main span, over the centre, is 600 feet; the other two spans are 300 feet each; and, when, completed, it will be one of the finest suspension bridges in Europe, and an ornament to the engineering talents of W. Tierney Clark, Esq., M. I. C. E. of Hammersmith, under whose superintendence the bridge was designed and constructed. Since the year 1840, Mr. Clark has annually visited Pesth, to inspect personally the progress of the works; and the contract for making the cofferdams was taken in the same year by that spirited contractor, George Burge, Esq. All the machinery, steam engines, cranes, crabs, etc., for the pile-driving, was supplied from England; and, from the limited knowledge of industry and mechanical powers in that country, it was found requisite to send out a great number of competent mechanics, to instruct the native Hungarians, who, under English working instruction and patience, are now an ornament to their country, as practical and efficient workmen. Thus, will Pesth Suspension Bridge stand a grand monument of English engineering, and of the first civilization of Hungary. The foundation-stone of this great national work was laid, in the coffer-dam on the Pesth side of the river, in July, 1842, by his Imperial Highness the Arch-Duke Charles of Austria; since which time the works have been gradually progressing; but the deficiency of roads in Hungary rendered it a matter of great difficulty to obtain the stone and other materials for the works. Although Hungary has vast resources of granite, and also fine stone of every description, and (near to Pesth) vast mineral resources, yet, from mismanagement, these resources are, in the present state of the country, perfectly useless. Not a single road is there in the whole country; in one

part corn is in abundance, while in the other parts they are often complaining of famine, and yet, from the deficiency of roads for communication, no relief can be given. The rotten policy of Austria is also a great check to the progress of Hungary; but the universal spreading of knowledge is making rapid progress there, and Hungary may, with perseverance, rank high as a commercial nation. From the deficiency of road in Hungary, Mr. Clark saw it would be impossible to obtain the quantity of granite required from the Hungarian quarries: the great granite quarry, near Linz, in Upper Austria, was then taken—where immense blocks were quarried for this massive masonry—many of the blocks are from 12 to 16 tons each, which form the ice-breakers of the piers in the bed of the river. These weighty masses were floated from Linz to Pesth, in clumsily-built boats—a distance of 400 English miles. The expense of the bridge, when completed, will be 6,000,000 florins, £600,000. The present communication between Pesth and Ofen is affected by means of a bridge of boats, constructed on military principles; but, on the ice making its appearance, the bridge is taken away; and, during the winter, the passage is very dangerous, and as many as 300 persons have perished in one season, in trying to effect a passage when large masses of ice have been floating down the river.

If the ARCH DUKE CHARLES had consulted us in relation to this bridge, before he commenced it, possibly we might have put him in the way, of putting us in the way, of a good speculation, as we have no doubt but that we could have selected at least two gentlemen in this country, who would build him a suspension bridge of 1200 feet, in a single span for one half the amount this one over the Danube is estimated to cost—£600,000! or \$3,000,000!! We will try, at all events, if he will give us an opportunity when he is about to build another.

#### Ocean Steam Communication, Southampton and New Orleans Direct.

"The Royal West India Mail steam packet company have entered into a contract, says the London Mining Journal, with the Lords Commissioners of the Board of Admiralty, to come into operation on the 2d November, when their vessels will proceed direct from Southampton to Bermuda, Nassau, Cat or Ship Island (New Orleans), Vera Cruz, and Tampico, returning by the same route to England. This arrangement admits of an easy and quick conveyance to and from Southampton, and the above mentioned places, and passengers for New Orleans will be conveyed thither from the company's vessels, on their arrival at Cat or Ship Island, by the Mexican Gulf Railway Company, who will have a steamer ready, and other conveniences provided for that purpose. The estimated time for the voyage from Southampton is as follows—To Bermuda, 16 days; Nassau, 21; Havana, 23; New Orleans, 28; Vera Cruz, 33; and Tampico, 35 days. By the above alteration, passengers proceeding to the West Indies by the 2d of the month steamer, will be conveyed via Bermuda, and by the 17th of the month packet, via Madeira and Barbadoes. No company has done more for affording facilities to our mining interest in Mexico, Chili, Peru, and the Havana, than the Royal West India Mail Company, whose vessels, for accommodation and tightness, are duly appreciated. It has long been a desideratum, that we should receive direct news twice a month from our mining operations in Mexico and Chili, instead of only by the monthly packet of the 7th. Arrangements are making to carry out

this grand object with the Mexican Gulf Railway Company, and the South Pacific Steam Navigation Company; and as a railway across the Isthmus of Panama is not only decided upon, but in actual progress of construction, further facilities will be thus afforded to our miners in the New World, for a quick and safe transit for the ores and precious metals for shipment to this country."

The assertion that a railway across the Isthmus of Panama, is "in actual progress of construction" is, we imagine, rather premature.

#### Buffalo and Mississippi Railroad.

We have before us a report made in June, last, by GEO. W. BALDWIN, Esq., of Charlestown, Mass., in relation to a line of railroad from Toledo to Chicago. We published in the Railroad Journal, of September 5th, 1846, the proceedings of a meeting held in relation to this work—and in the Journal of September 18, 1847, is a map, from which—although this line is not laid down upon it—the reader may see its position from the extreme point of Lake Erie to the south bend of the river St. Joseph, and thence to Michigan city and Chicago.

This report is evidently based on very indefinite examinations; but an experienced engineer can form a tolerably accurate estimate of the cost of the work, by comparing it with others over similar routes, and of like construction; and we may therefore presume that this report will be useful in guiding public opinion in relation to the work, as it contains a mass of facts and useful statistics. We are of the opinion, however, that the cost is put too low, and the estimated income—for a time at least—too high, though it cannot be otherwise than that a good road, across this peninsula, will command a large business, especially when the line shall be completed along the lake to Cleveland, and thence to Pittsburg and Philadelphia, as well as to the New York and Erie railroad.

We give such portions of the report as we think will be useful to those who desire information in relation to it, as well as to those interested in its construction.

The details of the two first divisions in Ohio are given in full, and the total cost of the remaining divisions, together with the grand total of the whole, with an 80 and a 56 pound rail.

The grades are generally favorable—though the greatest length and highest are against the heaviest trade.

The curves are very favorable—being scarcely any less than 2800 ft. radius, and 155 miles a straight line.

The advantages of this road are well set forth by Mr. Baldwin, and the relative distances and times of reaching Boston and New York by the different routes, are given in a convenient form.

The table of distances from Chicago will be found exceedingly convenient.

The estimate for business and revenue, as we said before, we consider high—at least for the present—though we admit that it may be fully realized a few years hence, as the increase of business in that region is to be rapid and constant—to an extent not duly appreciated by the people of this country.

If we may be allowed to add a word, or a suggestion, to the able report of Mr. Baldwin, we would say that he has omitted one very important argument in favor of this line, and that is, that its construction and connection with the Ohio railroads—soon to be made—will open a shorter route to tide water, at Philadelphia, via Pittsburg, than either of the others. A railroad from Toledo to Cleveland, and from thence to Pittsburg, where it will meet the



Central (Pa.) road, will furnish a shorter route, even to New York, than by Albany, and should not therefore be forgotten in enumerating the sources of business and profit to the Buffalo and Mississippi railroad.

## REPORT.

(Dated) Charlestown, Mass., June 1, 1847.

HON. H. D. MASON,

SIR: Having perambulated the railroad line from Toledo, in Ohio, to Chicago, in Illinois, a distance of 232 miles, I offer the following report upon the cost and traffic of the railroad when completed, for the consideration of yourself, Mr. WHITTLESEY, of Canfield, Ohio, and the other gentlemen, associated in the present inquiry concerning the feasibility of the project.

I ought, perhaps, before proceeding to make an apology for the incompleteness that may be discovered in some of the matter to be stated, on account of the great haste I was obliged to make in performing the duty I had undertaken, within a time limited by previous engagements; besides, the reconnaissance was made in the latter part of November and first part of December last, when the weather was extremely inclement, and the ground covered with snow for more than half the route. Notwithstanding, I feel assured, from what I saw of the line, and from the geological indications where the line was departed from; that nothing would be found in executing the work, which could seriously affect the conclusions to be drawn from the several reports, plans and profiles of the engineers who made the original surveys; which reports, plans and profiles, have necessarily been the basis of the present investigation.

The plans and profiles of the Ohio portion of the line, were missing at the time I made the reconnaissance; but their place was, in a great degree, supplied by the information furnished by Mr. Crane, of Adrian, who accompanied me as guide, and who ran the original level from Toledo to the east line of Indiana, under the direction of Mr. Hopkins, the engineer.

In Indiana, I was conducted along the line westward from Lima, by Gen. Orr, of Michigan city, who had assisted in the original explorations of the several routes surveyed in that State.

As a whole, the country over which the line will pass, may be considered unusually favorable in many respects, for so long a road—as the estimates, plans and profiles of the several engineers will show. From Toledo to the St. Josephs river, in Ohio, crossing the mill stream, Bean creek, the country appears quite flat, with the exception of an occasional slight swell or sand ridge, or depression at some of the very few streams that intersect the line. The soil on this part of the line is a sandy loam, covered at places with a deep rich soil, the whole underlain, as it probably is, by a thick stratum of clay. For the greater part of the distance, the sub-soil would no doubt be a suitable material for the road bed; but at places where the wet prairie or heavy timbered lands are passed, it might become necessary to bring from a distance, a better material for the road bed than

could be found in excavating the side drains. I am of opinion that few places would be found where a suitable substance would not be found in the drains. At the St. Josephs valley, some extra expense in embanking may be required; but for the want of profiles the difficulty, if any exists, at this place, cannot now be estimated.

From the St. Josephs to within three miles of the east line of Indiana, the country is generally level, and is heavily timbered. The soil near the St. Josephs is a sandy loam, underlain at places, if not generally, by the clay. In some excavations for wells and drains, small stones of carbonate of lime, and disintegrated shells, have been found, and used in making lime; and it was stated, that the limestones were hydraulic; this fact is interesting, inasmuch as the lime would be wanted in constructing the brick or stone masonry of the culverts and abutments to the bridges.

For three miles east of the State line, and for fourteen miles west to Silver lake, west of Angola, the surface of the country becomes more rolling and tossed in abrupt hillocks and ridges of sand, coarse gravel, and in some instances gravel mixed with clay. This portion of the line is the most objectionable part of the route, if we except the division between Laporte and Michigan city; the profiles, however, show nothing except the steepness of the reversed grades, which forbids this location. I formed an opinion in passing this region, that a better route might be found towards the south, where the hillocks and high summits could in a great measure be avoided. This opinion was afterwards confirmed by Gen. Orr, who, at the time the surveys were made, reconnoitered, in company with one of the engineers, a more southerly line into the State of Ohio; and they came to the conclusion, that an improvement could be made; and a survey was accordingly commenced, and prosecuted until the party became disabled by sickness.

The gravelly character of the soil in the vicinity of the adopted line, insures, within a reasonable expense, a roadbed of the greatest durability, even if the clay is met with in the deep cuttings, for the gravel which forms the surface of the country here, could easily be used to supply the place of the clay when removed for the roadbed, as it always should be, for a breadth of about 8 feet, and for a depth of  $1\frac{1}{2}$  to  $2\frac{1}{2}$  feet under arch track.

The character of the country west of Silver lake, to the town of Elkhart, following the northern route, via Lima and Bristol; is unexceptionable for a railroad, both in respect to the quality of the soil, and evenness of surface, as exhibited by the profile. I think the clay would not be found in this division of the route; for its presence has not been noted on the profile where the soil is described as sandy, gravelly loam or marsh.

The profile of the rival line through Goshen, shows a different condition of things, in the series of summits and steep reversed grades which occur, in place of the gradual descending grades and evenness of the northern line. The difference of distance between the two routes, from their divergence near

Union Mills, to their junction at Elkhart village, is stated in the report of Mr. Hardenberg, dated December, 1837, to be 228 miles. I was informed by individuals who were interested in the Goshen route, that it was anticipated a better route east from Goshen to the Ohio line, could be found in a course south of all the lines hitherto explored. The soil on the Goshen route is represented on the profile as consisting chiefly of gravel and loam with some marsh and wet soil.

From Elkhart to South Bend, the line follows the left bank of the St. Joseph, and the grades, which are light, except three, correspond to the surface of the country; and the cost of grading consequently light; at two places only, at Baubaugau river, and at a mill stream, would any extra work, above the minimum cost of construction, be required. The soil is supposed to be sand, gravel or loam at the surface, but perhaps clay would be found if the excavations were deep—as it is found in places in the banks of the St. Joseph, where clay for the straw colored bricks of the country is sometimes taken.

The route from South Bend to Laporte, passes down the southeast side of the Great Kankakee marsh, alternately crossing points of upland and marshy cover, until at about 14 miles from South Bend, it takes a new course across the marsh and Kankakee river, in a direction towards the town of Laporte; and after crossing the inlet to Fish lake and the Little Kankakee, the line, at about six miles short of its termination, enters and follows for the remainder of the distance, the Great Laporte prairie. This course is circuitous, and should, if possible, be avoided; I was informed that a more direct route to Laporte had been explored, and in part surveyed; and abandoned on account of the rolling character of the intervening country. The marsh if deep should be avoided, even at considerable cost of construction, and increase of grades; that is, supposing piles would be required for the support of the superstructure; besides the probability is, that where the line passes over a rolling country, a better material would be found for the roadbed, unless the formation was clay. The line surveyed, is probably three miles longer, than a straight line drawn between its two extremities.

From Laporte to Michigan city, the line for nearly the whole distance has been cleared of the timber, and considerable work done in grading the road. The profile shows the surface of the country for about 8 miles out of 13-20, (the length of the division) to be undulating, and after passing the summit, 5½ miles northwest from Laporte, descends precipitously for  $2\frac{1}{2}$  miles, at rates varying from 63 to 75 feet per mile. There occurs also, at about 4 miles from Michigan city, an ascending grade of 58 feet per mile, which should be reduced to 40 or 45 feet per mile. The worst features of this division are its grades; the cuttings and embankments, although considerable for two-thirds of the distance are not extraordinary.

It is apparent that the objections to the line as located, cannot be obviated without considerable increase of cost, distance, or sacrifice

of great interests, both by the company who shall undertake its construction, and the citizens of this populous district. This division is longer than a straight line drawn between the termini of about  $1\frac{1}{4}$  miles.

From Michigan city to the Indiana and Illinois line, following the surveyed south route the surface of the country on the line is extraordinarily level and smooth for so great a distance as 35 miles; it is rare to see so fine a profile; and the soil for a greater part of the distance must be good for a roadbed, if we can form an opinion from the character of the common roads in the vicinity, which are seldom if ever in a muddy state. At Deep creek and Calumet river, some deep marsh is noted on the profiles; the length of these patches, however, are limited; not exceeding twelve or fifteen hundred feet.

As it was the object, at the time this part of the route was explored, to enter the State of Illinois in the direction of the highest steamboat navigation of the Illinois river, intersecting the State line at a point 13 miles south of the northwest corner of Indiana, where the boundary line terminates at lake Michigan; it is probable that this idea of entering the State of Illinois so far south will be abandoned, provided a practicable route is found nearer the lake in the direction to Chicago, such a line was explored by Gen. Orr, and a survey commenced by Mr. Farnum the engineer, at the northwest corner of Indiana, and prosecuted until his party on account of sickness, had to abandon the survey after some progress had been made, and on account of professional duties more urgent, Mr. Farnum never resumed the survey.

The following is Mr. Farnum's description of the lake route:

"After completing the preceding surveys, I proceeded north to lake Michigan and commenced another at the State line, in order to determine the practicability of a shorter route in the direction of Chicago and Galena.

"This was commenced in towns 38 north range 10 west, and runs in a southeasterly direction, parallel, and within two or three hundred feet of the lake, for  $4\frac{1}{2}$  miles, when it passes on to a very small sand ridge, which it follows nearly to the Calumet river.

"In the vicinity of the lake for many miles sand ridges of various widths and elevations are very numerous and appear to have been formed by the subsiding of its waters. They commence at the lake and terminate at the Grand Calumet river, separated by sloughs and pools, of various widths and depths.

"The ridge, upon which the line passes, is elevated from 5 to 12 feet above the lake, and its width varies from thirty to three hundred feet.

"I have also made an examination of that part of the route, which was not instrumentally surveyed, and am prepared to express it as my opinion that no obstacles exist, but what may be removed at a limited expense.

"This line will cross the Grand Calumet in range 8 west, township 37 north, section 32 or 33, and pass about one mile south of Indiana city, and will connect with the for-

mer line east of the Little Calumet river and west of City West.

"By adopting this route, the line through the State will be increased three or four miles and the distance to Chicago lessened about seven miles."

The line of Mr. Farnum described above is the one that will be adopted if found practicable, I have no doubt. There is, in my opinion, but one difficulty that may arise on this route, if it becomes necessary to locate the road through or very near the sand hills which skirt the lake from Michigan city to and beyond the State line. It may happen that the road in the excavations and even on the embankments, may be buried by the drifting sand. To avoid this, some engineering skill may be required, and tunnelling in some one or two instances may become expedient, to save heavy annual expense in clearing the tracks.

In the estimates, I have assumed the cost of the road on this route, the data being imperfect; having seen but a small portion of the eastern part, where it entered some of the sand hills most distant from the lake; and where the difficulties were represented to be the greatest.

The Illinois division of the line has not to my knowledge, been surveyed, either from the terminus of the south or lake route; but from what was apparent along the stage road which I passed over on my reconnaissance, my opinion was decided, that nothing whatever existed to prevent the extension of the northern or lake route to Chicago, at minimum cost of construction; the country being generally low and level, and free from water courses. The line would lie along the lake shore where the washed pebbles of the beach could easily be procured if desired, for forming a most solid and durable roadbed.

At Chicago, I ascertained from the recent government survey, made by Mr. McLellan, of the topographical engineers, that the distance on a straight line across the lake, from Chicago pier to the pier of Michigan city, was 39 miles, and the distance between the same points, following the beach was  $47\frac{1}{2}$  miles. By the aid of the railroad surveys, and other plans obtained at the west, I make the distance from Michigan city to Chicago, by the lake route, to be 50 miles.

In composing the estimate for the superstructure, I have had in view two rails of different weights, one of 80 lbs. and one of 56 lbs. the lineal yard, for the purpose of exhibiting the cost of the road laid with each rail in comparison. The item of superintendence, engineering and contingencies, has been put down at about the same sum in each case; considering the simple increase of weight, in the article of rails, would have but little influence in increasing the contingencies, superintendence or engineering.

On inquiry here, I find some of the railroad companies have recently contracted in England for the heavy T rail, at the price of £12 per ton, delivered in England; but by the last quotations, the price was reduced to about £10 10s. per ton; which latter price I have adopted in the estimates. The heavy T rail

is now made in this country, from iron of excellent quality, and good workmanship, for \$85 per ton; which is higher than the English rail delivered in this country, duties paid.

It will be seen that I have omitted the item of subsills in the estimates, contrary to the usual practice; their use has been discontinued on the Boston and Worcester railroad, where they are considered worse than useless—their presence increasing the cost of repairs. In cases where the soil was soft and retentive of moisture, the number of cross sleepers should be increased. I have supposed in the estimate, 7 sleepers to each length of rail, and it would be better to increase them to 8 where the rail exceeds 16 feet. By using a heavy rail and multiplying the sleepers, we increase greatly the bearing surface on the roadbed; which if made of good gravel or dry sand, would not yield to the pressure more than they would if buried one or two feet in the soil, where the water would collect and remain for a long time, to the injury of the road.

#### DETAILED ESTIMATES.

##### No. 1. Cost of superstructure for one mile of single track.—Rail 80 lbs. to the yard.—For the Ohio division of the line.

T rail 80 lbs to the yard, delivered at Toledo, 140-80 tons, at \$93 50.....	\$13,164 80
2310 white oak sleepers, 7 to the length of each rail of 16 feet, at 15 cts.....	346 50
650 clasp cast iron chairs, each 20 pounds—13,200 lbs., at 3 cts.....	396 00
4950 lbs. spikes, at 6 cts.....	297 00
825 lbs. bolts for chairs, at 6 cts.....	49 50
Transporting rails, chairs, etc., from Toledo to the average distance in the State of Ohio.....	150 28
Labor, laying down superstructure, including fitting chairs to the rails.....	395 92

Total cost of one mile superstructure laid in Ohio.....\$14,800 00

##### No. 2. Same rail (80 lbs. to the yard) laid in Indiana, would require an additional cost of transportation to the average distance in that State, of \$500; making the total cost of one mile of road.....\$15,300 00

##### No. 3. Same rail (80 lbs. to the yard) laid in Illinois, adding additional cost of transportation, would cost for each mile of road.....\$15,600 00

##### No. 4. Cost of superstructure for one mile of single track.—Rail 56 lbs. to the yard.—For the Ohio division of the line.

T rail 56 lbs to the yard, delivered at Toledo, 98-56 tons at \$93 50.....	\$9,215 36
11,733 lbs. clasp chairs, at 3 cts.....	351 99
2,053 sleepers, 7 to the length of each rail of 18 feet, at 15 cts.....	307 95
8,212 lbs. spikes and bolts, at 6 cts.....	492 72
Transporting rails, chairs, etc., from Toledo to the average distance in the State of Ohio.....	108 52
Labor, laying down superstructure, including fitting chairs to the rails.....	423 46

Total cost of one mile superstructure laid in Ohio.....\$10,900 00

##### No. 5. Same rail (56 lbs. to the yard) laid in Indiana, adding the additional cost of transportation, would cost for each mile of road.....\$11,300 00

##### No. 6. Same rail (56 lbs. to the yard) laid in Illinois, adding the additional cost of transportation, would cost for each mile of road.....\$11,500 00

In the estimates which follow, I have been under the necessity of using the quantities of



earth work given in the reports of Messrs. Hopkins, Hardenberg & Farnum, and affixing to them new prices, to accord with the great change time has produced along the whole line, in creating greater facilities for doing work of all kinds.

From particular inquiries made of people who had executed earth work at the east as well as the west, I have reason to believe that the prices now adopted will make the road, even supposing much of the road bed will have to be removed, and replaced by a better material brought from a distance.

The width of the road, at grade line, in Indiana, is stated in the engineer's reports to be for a double track; in Ohio, Mr. Hopkins has not stated clearly whether the earth work was computed for a double or single track; his remark at page 11, where he states, "It will be seen that I have estimated for a single track only," refers I suppose to the superstructure of the road.

The masonry for the culverts and bridges has been computed anew from the profiles, and the prices adopted are for brick work laid in hydraulic cement. The absence of stone on nearly the whole route through Ohio and Indiana, and the probability of obtaining brick at a very cheap rate in both States, has induced me to propose this material for the masonry.

The wood work for the bridges has also been estimated anew from the spans given or inferred, from the plans, profiles and reports.

**ESTIMATE.**

*First division of 15 miles in Ohio, commencing at Toledo.*

Cost of single track laid with  
80 lb. rail. 56 lb. rail.

13,500 cubic yds. excavation, at 10 cts.....	\$1,350
22,400 do., at 14 cts.....	3,136
32,000 do. embankment at 11c.....	3,520
39,000 do. do., at 18 cts.....	7,020
Canal and other bridges.....	5,500
Piling in marshes.....	2,000
Clearing and grubbing, chiefly oak openings.....	750
Land and damages, 180 acres, at \$3.....	540
Superstructure as per detailed estimate No. 1, 15 miles, at \$14,800.....	222,000
Superintendence, engineering and contingencies.....	20,184
15 miles of road at \$17,733 33.....	\$266,000
<i>Same division laid with 56 lb. rail.</i>	
Grading the road as above, exclusive of superstructure, superintendence, engineer- ing and contingencies.....	23,816
Superstructure, per detailed estimate No. 4, 15 miles at \$10,900.....	163,500
Superintendence, engineering and contingencies.....	13,684
15 miles of road at \$13,733 33.....	\$206,000
<i>Second division of 15 miles in Ohio at \$17,066 66.....</i>	
Same division laid with 56 lbs. rail, at \$13,200.....	198,000
<i>Third division of 15 miles in Ohio, at \$18,000.....</i>	
Same division laid with 56 lbs. rail, at \$15,200.....	213,000
<i>Fourth division of 21-213 miles in Ohio to the Indiana line, at \$18- 39:39.....</i>	
Same division laid with 56 lbs. rail, at \$14,438 87.....	209,000

Cost of road laid with 80 lbs. rail thro' Ohio, 66-31 miles, at 17,855 51 per mile.....	1,184,000
Cost of road laid with 56 lbs. rail thro' Ohio, 66-31 miles, at \$13,964 71 per mile.....	926,000
Fifth division of 25-26 miles in In- diana, from Ohio line to Union Mills, at \$20,427 63.....	516,000
Same division laid with 56 lbs. rail, at \$16,349 96.....	413,000
Sixth division 39-09 miles in Indiana —from Union Mills, via Lima & Bristol, to Elkhart—north route, at \$18,930 67.....	740,000
Same division laid with 56 lbs. rail, at \$14,811 98.....	579,000
Sixth division, 41-31 miles, in Indi- ana, from Union Mills, via Gosh- en to Elkhart, south route at \$19- 458 55.....	805,000
Same division laid with 56 lbs. rail, at \$15,349 29.....	635,000
Seventh division, 15-56 miles, in In- diana, from Elkhart to South Bend at \$18,830 34.....	293,000
Same division laid with 56 lbs. rail, at \$14,717 23.....	229,000
Eighth division, 27-17 miles, in Indi- ana, from South Bend to Laporte, at \$19,286 98.....	524,000
Same division laid with 56 lbs. rail, at \$15,163 78.....	413,000
Ninth division, 13-20 miles, in Indi- ana, from Laporte to Michigan city, at \$22,727 27.....	300,000
Same division laid with 56 lbs. rail, at \$19,393 94.....	256,000
Tenth division, 35-13 miles, in Indi- ana, from Michigan city to Illi- nois line, south route, at \$17,677 20.....	651,000
Same division laid with 56 lbs. rail, at \$13,578 14.....	477,000
Tenth division, 37 miles in Indiana, from Michigan city to Illinois line, north or lake route, at \$18,648 65.....	690,000
Same division laid with 56 lbs. rail, at \$14,540 54.....	538,000
Cost of road laid with 80 lbs. rail through Ohio and Indiana, 223-59 miles, at \$18,984 59 per mile.....	4,247,000
Do., with a 56 lbs rail, at \$14,996 20 per mile.....	3,353,000
Eleventh division, 13 miles, in Illi- nois, from north corner of India- na to Chicago—continuation of lake route—at \$18,230 77.....	237,000
Same division laid with 56 lbs. rail, at \$14,076 94.....	183,000
Total cost of road laid with 80 lbs. rail, from Toledo to Chicago, 236- 59 miles, at \$18,952 62.....	4,484,000
Do. with 56 lbs. rail, at \$14,945 69.....	3,536,000
<i>Depots, Side Tracks, Tools, etc.</i>	
Cost of depot at Toledo, including all the necessary shops, side tracks, etc.....	60,000
Side tracks, watering stations and depots, within the State of Ohio, using the 56 lbs. rail.....	34,000
Side tracks, watering stations, depots, including 6-10ths of a mile of branch road, at Michigan city, using the 56 lbs. rail.....	115,000
Side tracks and watering sta- tion in Illinois.....	3,000
Depot at Chicago, including all the necessary shops, ware houses, etc.....	60,000
Total cost of road laid with 80 lbs. rail, including all fixtures and	272,000

tools, but exclusive of the motive  
power, 236-59 miles at \$20,102 29, 4,756,600  
Do. with 56 lbs. rail at \$16,095 35.. 3,808,000

<i>Motive Power.</i>	
36 locomotives, \$7,000.....	252,000
12 first class passenger cars, each containing 64 seats, at \$1,900.....	22,800
8 second class, containing 64 seats, at 1,200.....	9,600
8 baggage cars, at 400 dolls.....	3,200
120 long box freight cars, at 780 dollars.....	93,600
100 short do., at 400 dollars.....	40,000
30 long platform freight cars, at 550 dollars.....	16,500
30 short do., at 340 dollars.....	10,200
50 gravel cars, at 200 dollars.....	10,000
24 hand cars.....	1,100
	459,000

Total cost of the railroad from To-  
ledo to Chicago, furnished with a  
motive power equal to four thro'  
passenger, and four through bag-  
gage trains, each day; being at  
the rate of 23,042 35 dollars per  
miles for the 80 lbs. rail.....5,215,000  
And 18,035 42 dollars per mile for  
the 56 lbs. rail.....4,267,000

To be Continued.

**Baltimore and Ohio Railroad.**

*Twenty-first Annual Report.*

Continued from page 604.

**THIRD—OF THE FURTHER PROSECUTION OF THE  
ROAD TO THE OHIO RIVER.**

Under this head the Board are gratified to be enabled to congratulate the stockholders that by their action on a recent occasion, one of the obstacles that has hitherto retarded the extension of the road to its ultimate destination, has been removed.

By an act of the Legislature of the State of Virginia, passed at the last session, the grant of the right of way through that State has been renewed for a period of twelve years, upon the condition that the road shall be extended to the city of Wheeling without touching the Ohio river at a point lower down the mouth of Fish Creek, 28 miles below Wheeling.

With the consent of the City of Wheeling the Company is authorized by the law to establish a Depot at the mouth of Fish Creek; and Wheeling having in due form given her consent for that purpose, the Company has the option, in extending the road, to construct it to the Ohio at that point.

The Board are not aware that until very recently there has ever existed any diversity of opinion with the proper authorities, or in the community at large, of the expediency of extending their road to a southern point on the Ohio, from which they could with the least competition command the trade and travel passing up the river, and most certainly form connections with the improvements of Ohio, upon both the central and southern lines on which they have been projected in that State. And the Board do not doubt that it is the clear, unquestionable policy of the Stockholders of the State, and especially of this city, by the extension of their road to a southern point on the river, to attract the western improvements from any other point to which they might possibly be diverted, and at which they would be brought within the attraction of the rival cities north of Baltimore. A connection with the western

roads in the State of Ohio, upon either the central or southern line, in that state, would be indispensable to the success of this enterprise, and its ultimate object would be most effectually obtained by extending it so as to connect with both, and without the risk of competition with the northern rivals. In the earlier history of the Company, greater reliance than at present was placed upon the river trade and travel, and the city of *Wheeling* was considered by the projectors of the road as not only commanding these, but at the same time insuring a connection with the Railroads on the central line of the Ohio improvements. In all the applications of the Company for the right of way through the State of Virginia since the year 1842, however, the Company have asked for the option of extending their road to any point on the Ohio within that State they might select above the mouth of the little Kanawha, intending undoubtedly to terminate it at some point within that range of choice. Within those limits the selection must have been, and was expected to be, regulated so as to ensure a connection with the Ohio improvements, both on the central and southern lines; and it would have been necessary to avoid a terminus so far south as might force the improvements on the central line to a more northern point on the river, beyond the reach of this road. It had been, until recently, supposed that the mouth of *Fishing Creek*, twelve miles below *Fish Creek*, presented the best medium point for both purposes; and the impression generally prevailed that while the improvements on the southern line in Ohio could certainly connect more advantageously at *Fishing Creek*, those on the central line could also be more easily formed at the same point, than at *Wheeling*. From subsequent information, however, it would appear that the central improvements in Ohio may connect with this road on the river as advantageously at *Wheeling* or *Fish Creek*, as at *Fishing Creek*; and the former being only twelve miles farther from Cincinnati on the southern line than the latter, it is not to be supposed that so small an elongation in the distance, would interpose any obstacle to the prosecution of the works projected on that line.

The distance from Cincinnati to Baltimore on the Southern line through Ohio, by the mouth of *Fishing Creek*, may be stated at 600 miles, and to New York 800 miles, and to Baltimore, by the way of *Fish Creek*, 617 miles, and to New York, by the same point, 817 miles. While, therefore, from Cincinnati to New York, by the way of *Fishing Creek*, the distance would be 109 miles less through Baltimore than by the Northern route projected to New York, the distance to New York by way of *Fish Creek* would be still 92 miles nearer through Baltimore than by the Northern route.

In this view of the subject, and deeming it inexpedient to hazard the extension of their work upon the future legislation of Virginia, the Board thought the prosecution of the road to *Wheeling* by the mouth of *Fish Creek* would insure effectually a connection

with the Ohio works, on both the lines projected in that state, and still enable them to maintain a successful competition with New York.

They do not consider that the projectors of either of the lines in the State of Ohio, should expect to exclude the other from a connexion with this enterprise at a point most acceptable to it; and in the arrangement this Company have made with the city of *Wheeling*, and by accepting the Virginia law subject to its provisions, it must be conceded that the Board and the Stockholders have made a better compromise and accomplished more for those interested in the Southern line of improvement, than the same parties have been able to effect in any other way. It is to be observed moreover that the cost of the work to *Fish Creek* will not be greater than to *Fishing Creek*; and as the construction of the road from the former point to *Wheeling* will be made by the contribution of that city, and the depot and the right of way through the city being provided at the expense of that city, the Company will not have less ability to execute their engagements with the city of *Wheeling*, than if they had succeeded in their object of terminating the road at *Fishing Creek*.

It may be assumed, therefore, that in accepting the Virginia law, and confirming the agreement with the city of *Wheeling* the Stockholders have not only consulted the interests of the several companies engaged in making the improvements on the southern and central lines of Ohio, and ensured the connection of both with their road; but have acquired the right of reaching the Ohio at the point originally contemplated by the state and the city, with the additional and important privilege of extending it 28 miles lower down the river than they originally desired to do or could have done at any time since the spring of 1838. They may thus be enabled to accomplish their original object without the necessity of constructing a rival branch to their main stem, thereby attracting the travel and trade to a rival city; while by encouraging a connection of their road with the improvements on the southern line in Ohio, they offer new inducements to the works on the central line to form a similar connection, in preference to longer and more expensive lines to any Northern point.

Looking to these objects, it will now be in the power of the Company, by a vigorous and energetic prosecution of their road in conformity with the law and the agreement with the city of *Wheeling*, speedily to realize all that ever has been hoped from the enterprise.

It is not to be concealed, however, that for the accomplishment of this object, the united and cordial co-operation of those interested in the prosperity of the Company and of the city, will be needed; and the Board will not doubt that it will be effectively afforded. For twenty years the Stockholders, under the auspices of the state and the city, have been exerting all the means at their command to extend the main stem of the road to a point on the Ohio not farther north than *Wheeling*,

and in 1835, the state and the city proposed a liberal amount of aid to effect that object. The universal depression in the public credit which soon followed those efforts, and the expiration of the time limited in the acts of Virginia and Pennsylvania temporarily defeated the purpose. For the last ten years no exertion has been spared to obtain a renewal of the right of the way, within the limits of the original Virginia grant. These exertions have finally resulted in a choice of routes less restricted than that accepted in 1838, and not only in confirming the terminus deliberately and definitively adopted in that year, but in enlarging the route, so as to embrace a more Southern point, accessible to connections which might not have been commanded from *Wheeling*. For the accomplishment of this enlarged and more comprehensive object, there will be less distance, and fewer difficulties to overcome, and a less amount of capital to be employed than would have been necessary if the work had been extended under the laws in force from 1838 to 1843; and it is not to be presumed that having succeeded to an extent so much beyond their early hopes and expectations, any of those who have heretofore deemed the completion of the enterprise so essential to the prosperity of Baltimore, will abate any of their zeal and energy. The Board would have greatly mistaken the objects and purport of the trust confided to them, if, succeeding in their efforts, after so much toil and so many discouragements, they were not cordially supported in the prosecution of their work; and the Stockholders, if they neglected or failed in the necessary energy to use the opportunity they have deliberately sanctioned, would, in all reasonable probability, forever prevent the extension of the road to any point west of Cumberland. There is no occasion, and the Board have no disposition to arraign opinions which, amid the uncertainty and discouragement of obtaining the right of a terminus at a southern point, may have grown up in any quarter, favorable to a different and more northern line. So far as such opinions may have sincerely desired an early prosecution of the road to the western waters, and, from an apprehension that, either from the want of authority or of adequate means, the best would not be accessible to the Company, on these grounds advocated the adoption of an inferior line, rather than not go forward, they may be entitled to respect.

Opinions of this description, however, have no longer any reasonable pretext for their maintenance, more especially if an unreasonable persistence in them would most probably entail upon the community even greater mischief than they professed to avert. It is impossible that the subject could have been more thoroughly investigated, or more maturely considered by all that could be expected to take an interest in it. In the various and elaborate discussions to which, through a period of ten years, it has given rise in the Legislature of a sister State, and in the mass of facts and information developed in the course of an intelligent and free examination



of its merits in this community, every thing that could assist the mind in forming a sound conclusion has been elicited. The Board are not at liberty to suppose that those who have been called to pronounce their final judgment upon a subject of so much importance, and so deeply involving public and general interests, could be guided by any other consideration than those identified with the successful prosecution of their enterprise, and with the trade and commercial prosperity of this city; and to say that those by whom the ultimate decision was made, thoroughly knew and comprehended the advantages on one side and the hazards upon the other, and perhaps more than any others would seriously suffer from a mistaken course, would only be to say what would be felt and acknowledged by all.

The present enterprise in charge of the Stockholders may emphatically be said to be essentially a work upon which the prosperity of Baltimore is dependent. It has already absorbed three millions of capital of individuals interested in the prosperity of the city, and three and a half millions of that of the Corporate authorities, to be justified only by such an extension of the Road as would increase the trade and augment the value of every species of property; and it must not be overlooked that, of the assessment, in any form whatever, that may be necessary to refund to the State the unusual interest upon her loan to the Company, a full moiety, at least, must be borne by the authorities and people of Baltimore. In such a case, therefore, whatever diversity of opinion might at any time have prevailed in quarters and upon grounds already alluded to, it would be only reasonable and just towards all the great interests involved, after a final decision of the subject by so large a majority, that all interests would unite in rendering the decision effectual.

It is a great misfortune that ten years have already been spent in seeking the right to extend the road to the Ohio; but if, after obtaining it, upon terms satisfactory to a large proportion of those principally and substantially interested, ten years more are to be wasted in controversies respecting a route, or in excited struggles to reverse the decision already made, it would not only add to the misfortune of the past,—it would be in every view of the subject fatal. In the present condition and progress of improvements in other States, a stationary policy upon the part of this community could not be otherwise than fatal to their prosperity. If they do not now make an effort to extend their great work to the Ohio, other States will soon complete their exertions to attract the trade and travel of the West into other channels, and to cities of greater capital and other advantages, from which we will not be likely at any future day to divert them. That all the advantages, and any amount of trade that could ever have been anticipated from the extension of the road to the Ohio, may be commanded, and at no greater cost, by the route, and at the point selected by the Stockholders, has not been, and cannot be denied; and if any at-

tempt to embarrass that selection, by active opposition or a withdrawal of support; by ultimate defeat or unreasonable delay, can end in any thing short of a total destruction of all the great objects of the enterprise, the Board have not been able to conjecture it. For an object of such magnitude, therefore, appealing to so many interests, promising so many advantages, which, in fact, is so necessary to the commercial prosperity of Baltimore, and to the development of such an important region of the State that could not be developed by any other line of roads, the Board must continue to rely upon the cordial co-operation of all those interests which it has been their constant aim to promote.

Thoroughly impressed with a sense of their own duty in this posture of their affairs, the Board are prepared to exert their utmost resources and energies to press forward their work in good faith, in conformity with the authority now conferred upon them, and pursuant to the arrangement with the city of Wheeling. Their first duty, and the first measure devolved upon them, will be by minute instrumental surveys to discover and adopt the cheapest and best line, and to obtain the right of way, and establish the location preparatory to the requisite contracts. Several parties of Engineers are now in the field, and it is hoped that the surveys, on the preferred route through this State, to the Virginia line, may be completed during the present year. It would undoubtedly be the duty, and is the wish of the Board to extend the road from the city of Cumberland through this state, rather than confine it as they may do—entirely to the State of Virginia. It has already been hinted that the extension of the road upon the line through Maryland would immediately develop the coal and iron-deposits near the Potomac, and the important agricultural resources of the Glades, which would be wholly neglected by a line through Virginia, or even through another part of this state in pursuit of a more northern terminus. On this ground as well as to accelerate the completion of the surveys and the progress of the work, the route through Maryland ought to be preferred. If, however, from any sufficient cause whatever, the board should be called to leave the State of Maryland, and confine their route to the State of Virginia, their operations would only be retarded. In any event they will indulge the hope of being able to complete the surveys, and final arrangement for the right of way, so as to locate the line and place it under contract in the course of the next season.

It will be the duty of the board to employ the interval in devising the means, and effecting their financial arrangements to prosecute the work with the least possible delay; and although they deem it premature at this time and in this place, to advert in detail to the various sources and modes of arrangement from which they expect to obtain the means of prosecuting and finishing the road, they have reason to hope that the measures they have in contemplation for those objects will not be unsuccessful. They indulge only a reasonable confidence, moreover, in believing

that they will have at their command available and important resources which may be applied to the prosecution of the road authorized by the Virginia law, and the arrangement with Wheeling, that could not, by possibility, be commanded in aid of a road to a more northern point on the Ohio; and they cherish the hope that the temptation they will be enabled to offer to capital, and the just appeal they may make to all the great interests involved in the accomplishment of the work, will not be made in vain.

In conclusion, the board can only promise the faithful and energetic performance of so much of the duty appertaining to the prosecution of the work as is devolved upon them. If, after this, the enterprise be destined to failure, the board, at least, will stand acquitted.

In connection with this subject, and in further explanation of the recent law of Virginia and the agreement with the city of Wheeling, as well as for the purpose of bringing together the present state of the company's affairs, and the general grounds upon which the stockholders may be supposed to have made their recent decision, the board have deemed it expedient to append to this report, the report and documents accompanying it, of the committee by whom the arrangement with the city of Wheeling was concluded.

By order of the board.

LOUIS MC LANE, President.

October 1st, 1847.

#### Nashville and Chattanooga Railroad.

The following extract from the late message of the governor of Tennessee to the legislature, now in session, is in the right spirit. It speaks of the importance of the extension of this road, and the completion of the Hiwassee road, and earnestly recommends the subject to the attention of the legislature. He speaks also of the improvement of the Cumberland river and several other water courses, and anticipates, very justly we think, a state of prosperity for Middle Tennessee, when these works shall have been completed, equal to almost any other part of the Union.

If the legislature will now do as well as the councils of Nashville have done—and aid the railroad company to the amount of a million of dollars—the people of Middle Tennessee may easily take a saltwater bath at Savannah, or Charleston twice a week the year round.

"The completion of the Georgia railroad to Chattanooga, an event now soon to be expected, will constitute a new and important era in the commercial and agricultural history of the eastern portion of our State. It unlocks the door which for many years has been closed against the profitable exchange of her mineral and agricultural productions with the other States which surround her.—If nothing more were done, her people might well exult in such a vast improvement in their condition. But the Hiwassee railroad, extending as it will the benefits of this improvement to a much higher point on the Tennessee, at Knoxville, makes the completion of the whole line a matter of intense and almost vital interest to the whole of that large and interesting portion of the State. We have now good reason to expect the completion of

this latter portion of the road. The company has been reorganized, its old liabilities have been, to a considerable extent, discharged, and the present excellent directors have exhibited a laudable determination to push forward the work with vigor and earnestness.

"From Knoxville, if a well built macadamized road, extending in the proper direction to the Virginia line, could be constructed, and the principal obstructions in the Tennessee river could be removed to the flourishing village of Kingsport, East Tennessee, reposing amid her lofty mountains, would be surpassed by no portion of our State in the abundant means of wealth and general prosperity.

"If these grand projects cannot be carried on successfully by individual capital and enterprise, it will devolve upon you to determine whether any and how much assistance can be furnished by the State. The objects are of sufficient importance to engage in their behalf as full a share of State encouragement as her present liabilities and means would render prudent, and to this extent I earnestly recommend the subject to your attention.

"In Middle Tennessee we are every day receiving the richest rewards from many of the improvements already made. The eye strikes at once on the map and traces out the many great roads stretching across the State, and centring at Nashville, a convenient point of the navigation of the Cumberland. So too it glances along another road striking from Columbia, situated in the very heart of this middle region, and terminating on the Tennessee in its northern sweep through the State. Further north is to be seen a fine road coming in from Kentucky, terminating at Clarksville, and destined to contribute largely to the prosperity of a beautiful town now rapidly improving and bidding fair to become one of the most important commercial places in the State. Still the most superficial observer cannot fail to perceive the immense advantages to be derived by an extension of the Georgia road from Chattanooga to Nashville—advantages not to Chattanooga or Nashville alone, nor to the counties through which it would pass, but to almost every county in the middle portion of the State. This truth is every day becoming more manifest, in the increased anxiety everywhere displayed in favor of its construction. The corporation of Nashville has been authorized by the popular vote of the city to subscribe for half a million of the stock, and many individuals of acknowledged sagacity and shrewdness in all that relates to the profitable investment of their funds are known of, who intend to embark freely in the enterprise. In connection, however, with this work, the improvement of the Cumberland ought not to be lost sight of. A charter to individuals for this purpose was granted at the last session of the general assembly singularly defective in some of its provisions. I earnestly recommend its supervision and amendment in such a manner as to ensure the speedy removal of these obstructions, so detrimental to the commerce and trade of the middle portion of the State.

When the Chattanooga and Nashville railroad shall have been completed, and the obstructions in the Cumberland, the Elk, the Duck and the Kaney Fork, shall have been removed, it would be difficult to find any other region in the world possessing more advantages than Middle Tennessee. With a soil remarkable for its fertility—a climate happily exempt from the sickness of the south and the intense protracted cold of the north—a population proverbial for its industry, sobriety, and enterprise—with an easy accessibility by her roads and rivers to the markets of New Orleans, and through her proposed railroads to those of Charleston and Savannah, she may well challenge comparison with the most favored regions of the Union."

#### TRIAL OF THE DEE BRIDGE GIRDER.

Our correspondent writes from Chester, that the officers of the Chester and Hollyhead railway company, instead of waiting the inspection and test of a government commission, and entertaining, it is presumed, doubts upon the strength of the fellow to the broken girder, have tested it themselves on the very eve of the appointment of that commission. It was accomplished with railway bars, suspended from the girder; and the weight was gradually applied, and equally distributed over the centre division of the rib, until it reached 38 tons 6 cwt. 2 qrs. 18 lbs., under which it broke. The fracture commenced at the bottom flanges, and proved clearly that it broke by tension. This experiment at once shows the fallacy and utter uselessness of the tension bars in the manner in which they were applied at this bridge. In addition to the bungling at the Dee bridge, which 'bangs Banagher,' they are now taking down the girder bridge over the Chester and Ellsmere canals of 60 feet span, in consequence of some fractures being observed in the masonry at the quoins of the abutment upon which outside girders rest.—*The Builder*.

#### IRON FOUNDRY OF SERAING.

This immense establishment—the most important in Belgium—was founded by the late John Cockerill, but has since been very greatly extended by its present proprietor, M. Pastor. It now occupies a superficial extent of 2170 yards, has six blast furnaces, five of which are employed in smelting, and the remaining one in preparing the metal for superior castings; the produce of the five is about 62½ tons of pig iron in 24 hours, and the latter one 9 tons of fine casting metal in the same period. The quantity of material required to supply the furnaces, in 12 months, is 53,572 tons of iron ore, 34,822 tons of coke, and 14,723 tons of limestone, or other flux; the tilt hammers weigh 4½ tons each; 11 steam engines are employed, of an aggregate power of 500 horses; the principal forge produces 85 tons of wrought iron monthly. The workshop, for the manufacture of locomotive engines, extends over a space of 1250 square yards, traversed down the centre by two parallel lines of railway; and the lathes for turning the various delicate parts are of the most gigantic description.—To form some idea of the extent of this es-

tablishment, the reader must bear in mind that there are upwards of 4200 men constantly employed day and night. In addition to the iron furnaces there are 14 smaller ones for copper, brass, steel, etc. The produce of the rough metal, before manufacture, cannot be much less than £1,000,000 sterling.

#### NEW RAILWAY SIGNAL.

Mr. Heinke, of Great Portland street, has invented a signal which merits the notice of all railway directors. The object is to afford a means of communication between the guard and the engine driver, nothing of the kind being at present in use, in the event of any unforeseen circumstance occurring, which requires the immediate stoppage or retardation of the train; the contrivance is simple enough, but is apparently none the less efficient on that account. Mr. Heinke proposes to have a wire or cord running over the top of each carriage, furnished with a spring swivel at the ends, permitting of instant attachment to its next neighbor, and consequently affording an extemporaneous connection between the extremities of the train. By this easily applied apparatus a spring bell, placed in the vicinity of the engine driver, can, in a moment, be struck by the guard, apprising the former of accident in the rear, the nature of which may be explained by any variety of signal blows that may be determined upon. No practical communication between the guard and the engine driver is at present adopted to provide for cases of sudden emergency, but Mr. Heinke has thus suggested a plan, which is not only susceptible of ready experiment, but which seems to be of a principle which cannot well fail; while its use involves the loss of no appreciable time, either in the process of adjusting, or in operation. The idea is capable of still further extension, inasmuch as a summons might in a case of necessity, be conveyed to the guard from the interior of any of the passenger carriages—experience having already proved an available correspondence with this functionary, to be among the desiderata of railway travelling. The model which has been submitted for inspection by Mr. Heinke plainly indicates that the advantages we have above described may be obtained, and obviously without much cost, though that is of small consideration.—*Mining Journal*.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

FULLER & BROWN, Agents,  
No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 104

**FOR SALE—300 TONS (10 MILES) FLAT** Bar Rail, in parcels or wholesale—section 2½ inches wide by 1 thick. The Rail has been several years in use, and its quality thoroughly tested—none but perfect bars delivered. Address

I. R. TRIMBLE,  
Wilmington, Del.  
**GILLESPIES' WORK ON ROAD MAKING.**  
A Manual of the Principles and Practice of Road making, comprising the Location, Construction and Improvement of Roads, (Common, Macadamized, Paved, etc.) and Rail Roads, by W. M. Gillespie, Professor of Civil Engineering in Union College. Published by A. S. BARNES & CO.,  
51 John St., New York.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

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**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLANS.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse & E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—400 TONS ENGLISH,** 60 pounds per lineal yard, of best manufacture, and expected to arrive about 1st October by London packets. Apply to

**DAVIS, BROOKS & CO.,**  
68 Broad Street, New York.

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**PENNSYLVANIA RAILROAD COMPANY**  
Notice to Contractors.—Proposals will be received until **THURSDAY**, the 25th day of November, at 10 o'clock A. M., at the Town Hall, in the Borough of Lewistown, for the grading and masonry upon about 36 miles of the Pennsylvania Railroad, extending west from section 20 to near Lewistown Dam.

Plans and specifications of the work can be seen at the above named place for five days previous to the time appointed for receiving bids.

Any further information can be had upon application to **WM. B. FOSTER, Jr., Esq.,** Associate Engineer at Harrisburg. **S. V. MERRICK,** President.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
**SHIPPING & COMMISSION AGENTS**

FOR

**PASSENGERS, SPECIE, GOODS, PARCELS, etc.**  
To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

**ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

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**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

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**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

**R. L. Stevens,** President Camden and Amboy Railroad Company; **Richard Peters,** Superintendent Georgia Railroad, Augusta, Ga.; **G. A. Nicolls,** Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; **W. E. Morris,** President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; **E. B. Dudley,** President W. and R. Railroad Company, Wilmington, N. C.; **Col. James Gadsden,** President S. C. and C. Railroad Company, Charleston, S. C.; **W. C. Walker,** Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; **R. S. Van Rensselaer,** Engineer and Sup't Hartford and New Haven Railroad; **W. R. M'Kee,** Sup't Lexington and Ohio Railroad, Lexington, Ky.; **T. L. Smith,** Sup't New Jersey Railroad Trans. Co.; **J. Elliott,** Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; **J. O. Sterns,** Sup't Elizabethtown and Somerville Railroad; **R. R. Cuyler,** President Central Railroad Company, Savannah, Ga.; **J. D. Gray,** Sup't Macon Railroad, Macon, Ga.; **J. H. Cleveland,** Sup't Southern Railroad, Monroe, Mich.; **M. F. Chittenden,** Sup't M. P. Central Railroad, Detroit, Mich.; **G. B. Fisk,** President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hineckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of **Erastus Corning & Co.,** Albany; **Hart & Merriut,** New York; **J. H. Whitney, do.;** **E. J. Eting,** Philadelphia; **Wm. E. Coffin & Co.** Boston. ja45

**MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J.** The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

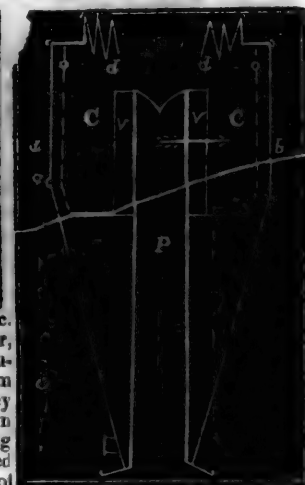
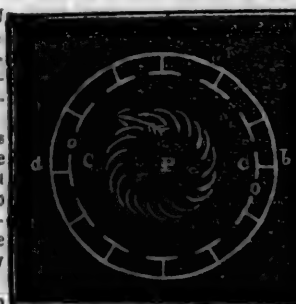
**Railroad Work.**

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

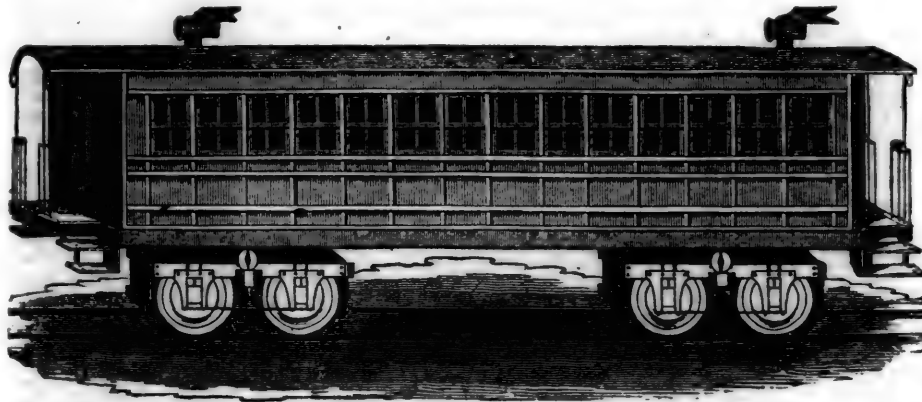
**Cotton, Wool and Flax Machinery** of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
a45 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES' CAR WORKS, CAMBRIDGEPORT, MASS.

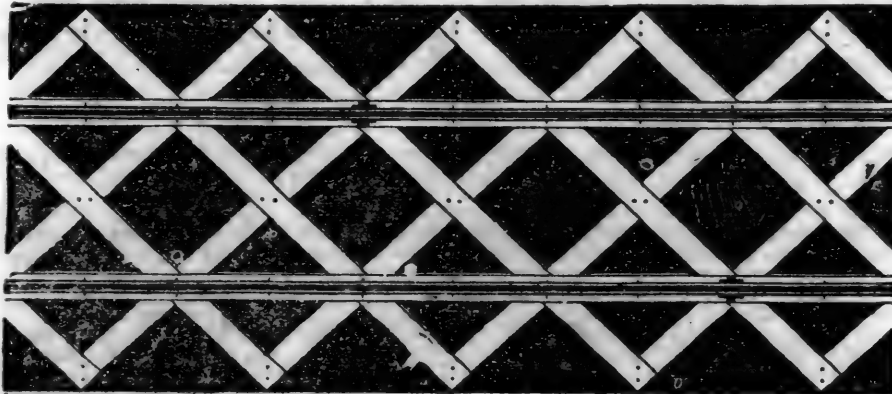


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**  
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

## LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

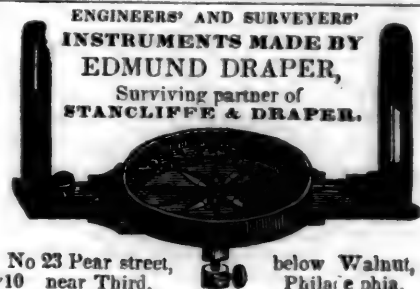
## RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address **J. M. HOWE,**

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philad e phia.



road Depots, etc.  
West Troy, May 12, 1847.

**ANDREW MENEELY.**  
1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to **MURDOCK, LEAVITT & CO.,**

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its ability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-3	7½
16	2½	4 3	6	8 6		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

Philadelphia, Pa. 1y35

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS, Reading, Pa. 1y45

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co. have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845. 1y19 Sup' Motive Power

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

445 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

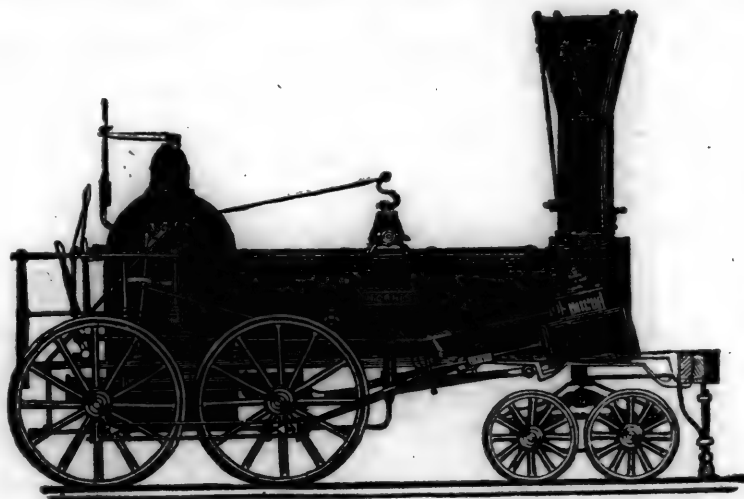
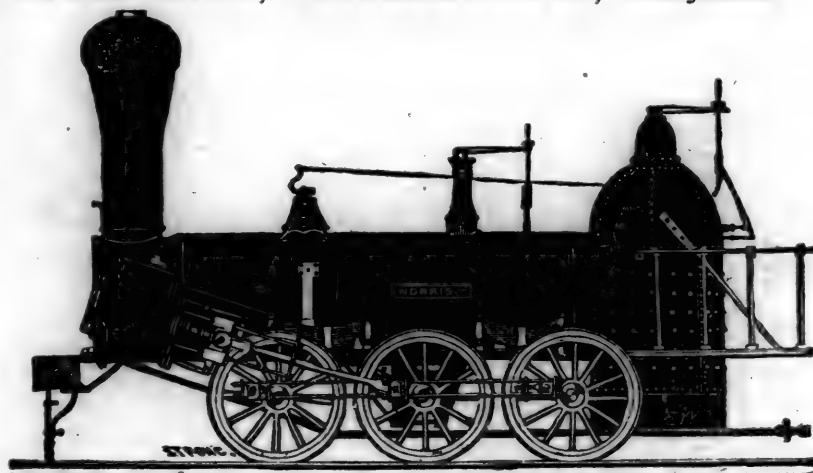
**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10 New York.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
" 2,	14	" " " × 24 " "
" 3,	14½	" " " × 20 " "
" 4,	12½	" " " × 20 " "
" 5,	11½	" " " × 20 " "
" 6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, }  
 Peter Cooper, } New York.  
 Murdock, Leavitt & Co. }  
 J. Triplett & Son, Richmond, Va.  
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Patton, Jr. } Philadelphia, Pa.  
 Colwell & Co. }  
 J. M. L. & W. H. Scovill, Waterbury, Conn.  
 N. E. Screw Co. } Providence, R. I.  
 Eagle Screw Co. }  
 William Parker, Supt. Bost. and Worc. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardiner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear-work of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 30th 4 South Front St., Philadelphia. 25th

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART,**  
 12 Platt street, New York.  
**JOB CUTLER,** Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28th

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

**JOAN F. WINSLOW, Agent,**  
 Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

**REEVES, BUCK & CO.,**  
 Philadelphia.  
**ROBERT NICHOLS, Agent,**  
 No. 79 Water St., New York. 26th

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28th

J. BALL &amp; CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between these two roads, will run as follows, viz: Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**

**PATERSON RAILROAD**  
 Summer Arrangement.  
 Commencing April 20th, 1847, the cars will leave Paterson at New York at  
 8 o'clock a.m. 9½ o'clock a.m.  
 11½ o'clock a.m. 12 1-4 o'clock p.m.  
 4 o'clock p.m. 5½ o'clock p.m.  
 On Sunday.  
 8 o'clock a.m. 9½ o'clock a.m.  
 4 o'clock p.m. 5½ o'clock p.m.  
 Office 75 Courtland St.





**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Cincinnati at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "

From Bellefontaine to Sandusky city by railroad.....103 "

**FARE**—From Cincinnati to Lebanon....\$1 00

" " " Xenia.....1 50

" " " Springfield... 2 00

" " " Columbus... 4 00

" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

474

W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.

The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at...1½ p.m. and 8 a.m.  
Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35½

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....190 Miles.  
Macon to Atlanta—Macon and Western.....101

Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
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On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
--	------	------

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 30	pr. 100 lbs. 35
---	------	-----------------

Crockery, per cubic foot.....	0 15	" " 35
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Molasses and Oil, per bhd., (smaller casks in proportion). 9 00		12 50
---	--	-------

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
--	------	------

Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
---	------	------

Salt, per Liverpool Sack.....	0 70	0 95
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Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1734

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred.

On measurement goods... 13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime).... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hdds. and pipes of liquor, not over 130 gallons.....\$5 00 per bhd.

On molasses and oil.....\$6 00 per bhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 171

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 13 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York.

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# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50	and \$3 00
" " Reading,	58	2 25	and 1 90
" " Pottsville,	34	1 40	and 1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle and Frenchtown R.R. Leave Philadelphia at 3 p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wil-

mington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE,  
Engineer and General Superintendent.

# GEORGIA RAILROAD.—FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,  
Sup't. of Transportation.  
Augusta, Ga., July 15, 1847. 44\*17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macomb and Decatur and intermediate points.	0 22 1/2	1 54		0 81	0 86
and Knoxville & intermediate points.	0 22 1/2	1 54	1 10	0 76	
and Chattanooga.				0 61	
Between Augusta and Decatur and intermediate points.	\$0 24	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	\$0 21	1 70	1 20	0 80	
and Chattanooga.				0 65	
Between Charleston or Savannah and Decatur and intermediate points.	\$0 32	2 20	1 40	1 05	1 10
and Knoxville & intermediate points.	\$0 32	2 20	1 40	1 00	
and Chattanooga.				0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....					
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovel, Spades, Seythes, Smith's' Bellows, Baskets, Tubes, Sitters, Brooms and other light articles, per 100 lbs.....					
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.					
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Linseed Oil, per 100 lbs.....					
Per 100 lbs.					
Cotton.					

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.  
Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1834 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	3 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 46

SATURDAY, NOVEMBER 13, 1847.

[WHOLE No. 595. VOL. XX.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, November 13, 1847.

**CHILLED RAILROAD WHEELS.**—THE undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,

Willow St. below 13th,

Nov. 10, 1847. [if.] Philadelphia, Penna.

## Railway Accidents.

The increase of fatal accidents on railroads demands the attention of all who can contribute in any degree to their prevention. There has been, during the past few weeks, a succession of accidents on our railroads, attended with a frightful loss of life, unparalleled in our railway history; and we must come to the conclusion that there is a sort of fatality attending the operations on our railroads this season, or that there has been a sad lack of attention somewhere.

Without going beyond the month of October, we have the fall of a bridge on the road between Fitchburgh and Keene, with the loss of five or six lives—then another on the Reading road, where nearly as many more were killed—and now, within the past week, the sad accident on the Boston and Worcester road, where seven were killed outright, and others injured—and, as we understand, several per-

sons were killed on the Western road, at or near Pittsfield, one day this week. By these four accidents occurring within a month, nearly twenty lives have been lost—and probably half that number of families have been deprived of their main support. This is a sad state of things to reflect upon, especially if a want of proper care has in any way contributed to it; and therefore we feel constrained to refer to it, and to call upon the proper persons to investigate the matter, and to place the responsibility on the right shoulders—and also to endeavor to devise a remedy, if possible, for the evil.

## Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, November 4, 1847.

	Tons, cwt.
From Port Carbon.....	9,364 04
" Pottsville.....	4,982 18
" Schuylkill Haven.....	12,530 11
" Port Clinton.....	3,493 19

Total for week..... 30,375 12  
Previously this year..... 1,141,187 19

Total..... 1,171,563 11

HENRY M. WALKER,

Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending November 4, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	6,452 04
Schuylkill Haven.....	2,071 09
Port Clinton.....	00 00

This week..... 8,523 13  
Previously..... 194,759 07

Total..... 203,283 00

## Air Springs and Railway Buffers.

The Mining Journal of 27th October says: "Our attention has been directed to a new and valuable improvement connected with railroad travelling, exhibited at the Fair at Castle Garden. It appears to be a very simple and perfect machine, holding a given quantity of compressed air, which can be increased or lessened in a moment to suit any required pressure—easily attached to old or new trucks, and requiring no attention or expense to keep them in order. We see no reason why they should not entirely supersede every other kind of spring, as the saving of wear and tear equally to passengers, cars and roads, must be very important, and if attached to locomotives, will enable them to attain greater speed with equal safety. We have recently been on

the Somerville road, in a new and elegant car which has these springs under it, and the motion is very pleasing. Gentlemen who have rode in cars, in N. England, under which they are placed, assure us that the difference between them and the ordinary springs is very perceptible upon passing from one car to the other in the same train, and that they find no difficulty in reading books or papers with ease and comfort while riding upon the air spring. Without doubt, they may be adapted to omnibuses, pleasure carriages, etc., and we hope soon to see them in Broadway.

"The philosophical principle of the permanent elasticity of atmospheric air, is now attracting great attention both in this country and Europe, and if other applications of this principle are as successful as in the present instance, great and important results will follow.

"They are manufactured by the proprietors of the patent, New Haven, Connecticut. Sherman & Mearns, 76 Broad street, New York, agents."

## Postoffice Department and the Railroad.

There appears to be a growing difficulty between the postoffice department and the railroad interest; and the people—the business community—are to be the sufferers. Formerly it was customary to pay extra prices for extra speed—as well as increased prices for increased service. Increased speed has always been deemed an important matter with business men who pay for the transportation of the mails.

The prices paid for transporting the mails in post coaches, and wagons, on the main lines, at one-quarter or one-third of the speed of railroads, was, if we recollect, quite as much, in proportion to the quantity carried, as it is now on railroads. If speed is worth anything to the business community, that community, through its agent having charge of that department, should pay a fair compensation to those who, by a large outlay of capital, are enabled to attain the speed so highly valued.

We are very far from wishing to give to the railroad companies the control of the postoffice department, as we also are of allowing the postmaster general to require services of the companies without a fair compensation.

We are led to refer to this subject, at this time, from the notices we have recently seen in the newspapers in relation to the controversy between the postmaster general and the Richmond, Fredericksburg and Potomac railroad company. It was stated in the first notice of it which met our eye, that the



company demanded an increase on former prices—of \$3,750—which the department declined to give, and were of course compelled to resort to some other mode of carrying the mail from Washington to Richmond, 131 miles, and therefore proposals are requested, and the time allowed in the schedule is 23 hours, instead of 84 hours as now allowed. It is true, we understand, that in reply to the regular advertisement for proposals on this route, an advance, something in proportion to the increase of the weight carried, or service rendered, was asked by the company, but—*notwithstanding* theirs was the only bid—the postmaster general declined it, and even refused to give them the same rate of compensation that they had received for the past four years—*notwithstanding* a large increase of service required.

We understand that the company did not *decline* the service at former rates, even though they had proposed for higher. Yet they did refuse to continue the service after the 10th of December next, at the rate offered by the department, which was \$3,217 less than they had agreed on in 1842 and 1843, and had received for slower schedules and inferior service.

The question is now to be decided whether the company shall do more work for less compensation, or the mail service shall be retarded 16 to 24 hours between Washington and Richmond.

It is but fair and just to those who risk their capital, that the traveller and the mail may be transported at higher velocities, should receive returns in some proportion to the advantage his investment gives to the community, and we therefore suggest that the compensation for carrying the mail shall be in proportion to the *quantity and speed*; and recommend that a law be passed, by which these controversies may be avoided—as otherwise the rapid extension of railroads will give rise to frequent controversies.

The following statement of the railroad company shows their position:

OFFICE RICHMOND, FREDERICKSBURG & P. R. R.,  
Richmond, November 3d, 1847. }

To the Editors of the *Whig*:

GENTLEMEN:—As you have published from the Baltimore Sun an extremely partial view of the existing difficulty between this company and the post-office department, I cannot defer placing in your possession an extract from the minutes of our board of directors in relation to the subject. Though not so copious as the correspondence, (which will soon be placed before the public) it is plain enough, I think, to satisfy any unprejudiced mind, that the demands of the department for increased service—the necessary consequence of the rapid expansion and growth of our country—will sustain the companies in the position taken by them, which is, to submit to no reduction in the compensation allowed them for several years past, and which they are assured by eminent counsel, it is fully in the power of the department, under the law, to continue to them.

Very respectfully,

ED. ROBINSON, *President*.

At a meeting of the board of directors of the Richmond, Fredericksburg and Potomac railroad and Washington and Fredericksburg steamboat companies, held at the depot in Richmond, October 26th, 1847:

The president stated that the postmaster general had awarded to the two companies the sum of \$7,258 75 for carrying the mail between Richmond and Washington for the quarter ending on the 1st inst., instead of the sum hitherto paid by the department, being a reduction at the rate of \$3,217 per annum on the compensation agreed on in 1842 and 1843 for

slower schedules and inferior service, and when the mails were much lighter than at present, and that the postmaster general had requested, if this compensation was not satisfactory, that the board of directors would give at least twenty days notice to that effect, when other means of transportation would be provided by the department; whereupon,

*Resolved, unanimously*, That the president respectfully notify the postmaster general, that, while the board of directors deem the compensation offered by the department an inadequate one for the services rendered by the companies at other seasons of the year, it is, in the opinion of the board, entirely so for the winter months, when the extra expenses and hazard incurred by the steamboat company *alone*, in the transportation of the mail, beyond those of other steamboat lines, are greater than its whole mail pay at that season would cover; and that the board of directors must reluctantly decline the further transportation of the mail on the terms offered by him after the 10th day of December next, when the winter schedule commences.

An extract from the minutes:

C. W. MACMURDO, *Secretary*.

#### Iron Trade.

The report of 8th October, quote rails at £9 average—"Yet," says a correspondent of the Mining Journal, "owing to the state of the money market, the transactions in metals have been very limited of late, but the prices have been generally well maintained; the only articles on which we have to decline, are Scotch Pig-Iron and Spelter—all other prices remaining at last week's quotations."

*Glasgow Pig-Iron Trade*.—Our pig-iron market is feeling the effect of the late commercial disasters. Prices are receding every day, and may now be quoted at 57s. 6d. for No. 3; 59s. 6d. for mixed Nos.; and 61s. for No. 1—cash; a limited business doing.

#### MONTHLY REPORT.

(From a Correspondent.)

*Iron*.—Notwithstanding the state of the money market, and the many disasters which have recently taken place, both here and in the provinces, the iron trade in Wales and Staffordshire has maintained its firmness. The Welsh ironmasters are actively employed in carrying out their contracts for bars and rails; and such is the demand for the former, that it is difficult to get any of the makers to execute orders unless at extreme prices. The Staffordshire trade is also brisk, with no disposition to give way in price. Scotch pig has been much depressed during last month, owing chiefly to large parcels in the hands of speculators being forced on the market, and a decline of 3s. to 4s. per ton has taken place within the last two or three weeks. In Swedish iron and steel there is not much doing; a few sales of the former have been made, principally for the American market.

The Birmingham Advertiser holds the following language in relation to the iron trade, viz:

"The preliminary meeting of the ironmasters of this district took place on Tuesday, at Wolverhampton; and we are happy to state, that the result was satisfactory. The prices of manufactured iron (bars, hoops, and sheets), remain the same. The home demand is very good, and this, considering the time of the year, and the fact that the shipping season will be soon drawing to a close, fully warrants the conclusion arrived at by the trade. Pig-iron maintains its price—the principal makers are already full of orders for the next quarter's delivery; indeed, the quantity made in South Staffordshire is not equal to the demand. So much is being used for casting, for railway, and other purposes, and so large a quantity is converted into manufactured iron, that were it not for the pig-iron imported from other districts, the scarcity would, we have no

doubt, be material. There cannot be any considerable reduction, either in the price of pigs or manufactured iron, so long as the value of labor is so high, the raw material so dear, and the demand so great. The large failures in the City, and elsewhere, have not, as yet, affected the iron trade; it is true that several iron merchants have failed, but the business done by them in this district was very limited. Notwithstanding the pressure upon the money market, we have every reason to believe that the engagements will be promptly met, and payments punctually made at the ensuing quarter-day. The manufacture of railway bars is a distinct branch of the iron trade, and the price is not settled at the general meetings. The requirements of *bona fide* railway companies—of those who can afford to pay for the rails contracted for, and who cannot do without them—will be sufficient to keep this department of the trade in full operation for some time to come; indeed we speak advisedly, when we declare that we have not heard of one single order for rails being postponed through 'railway embarrassment.' That the iron trade should pass through a great commercial panic, meet the heavy pressure in the money market, and not be ultimately affected by it in some degree, is almost too much to be expected; but, we believe, when the panic is over, and the pressure is removed, it will be found that the iron trade has been comparatively unaffected, or, at all events, that it has enjoyed an extraordinary exemption."

The report of the 15th October shows a depression in the price of rails, as compared with last week. The quotations being £8.10 a £9, average.

Welsh iron may now be generally bought for £8 12s. 6d. in Wales, the demand continuing fair for this description, and also for Staffordshire. Scotch pig is dull of sale.

*Glasgow Pig-iron Trade, Oct. 14*.—Our pig-iron market has rather improved this week; there is, however, very little business doing. Mixed Nos. may be quoted at 60s. to 61s.—cash.

*The Iron Trade*.—The usual quarterly meeting of the ironmasters of South Staffordshire and Shropshire, commenced at Walsall, on Monday: the second, and more important one, was held at Wolverhampton, on Wednesday. The attendance of those interested in the trade was numerous, but any details are rendered unnecessary, as the terms agreed to at the preliminary meeting last week, were fully confirmed.

The ironmasters held their usual quarterly meeting at the Town-Hall, Birmingham, on Thursday last—the attendance at which was unusually numerous; and the reports of all engaged in the trade confirmed that which we have already announced, relative to its healthy condition. There are still large orders in the houses both for home and foreign requirements, and, as a consequence, a determination has been arrived at to stand by existing prices. The figures are—for Staffordshire bars, £10, for pigs £4 15s. to £5 5s. per ton, according to the quality. We have reason to believe, too, that there has been less of underselling by the smaller makers during the quarter just ended, than has been known for several years. The settlement of accounts has passed off satisfactorily, the difficulties caused in other parts of the country, consequent on the very serious monetary panic, not having yet, we are assured, affected, to any extent, the trading interests of this district. Reports, which have been current for a day or two respecting the unsatisfactory condition of the affairs of a company interested in the iron trade and working out a patent, have to-day re-

ceived confirmation. We understand that a meeting of the proprietary will be convened forthwith, and that a proposition will be submitted whether it is expedient to make another call, or at once to wind up the concern. It is most probable, that the latter alternative will be resolved upon, but in no case will the creditors suffer to the extent of a fraction. On a rough calculation, it is not improbable that at the present time the company is employing 2000 pairs of hands. The continued satisfactory condition of the coal trade is the only other fact we have to report; upon the whole, the aspect of the commercial concerns of this district affords, when contrasted with those of other parts of the country, matter for much congratulation.—*Birmingham Adv.*

#### Anthracite Iron.

The anthracite district of South Wales, says the Mining Journal, seems to be rising rapidly into importance in the production of iron. Ten years ago there was only one establishment, of three or four furnaces, in operation at Yniseddwyn, in the Swansea Valley—now there are no fewer than nine concerns, possessing 33 furnaces, of which 23 are actually in blast at this time. The following are their names, with the number of furnaces in and out of blast:—

Furnaces.	In blast.	Out.
7.... Yniseddwyn—(Mr. Cranes')....	7....	0
11.... Ystalyfera—(Budd & Co.)....	7....	4
2.... Ynallt—(Jevans & Wood)....	2....	0
3.... Gwendraeth.....	2....	1
2.... Oallyn—(Williams).....	2....	0
2.... A'ernant—(Neath Abbey Com.)....	2....	0
2.... Trinsaran—(Norman & Co.)....	1....	1
2.... —(Lewellyn & Sons) unfin'd....	0....	2
1.... Banwen.....	0....	1
32.....	23.....	9

With a fuel so difficult to deal with as anthracite, the quantity of iron produced by each furnace is not as large as the furnaces in the bituminous districts of Wales and Staffordshire turn out, but the quality is acknowledged to be of a very superior character, as is proved by the large quantities which are sent to the mills and forges in Staffordshire. Taking the average production at 50 tons each furnace per week, the whole make of the 23 furnaces in blast is 1150 tons per week, or 59,800 tons per annum—a quantity by no means insignificant. Besides the furnaces already mentioned, there has lately been erected at Briton Ferry, near Neath, a powerful mill for rolling bars and rails from anthracite iron, and capable of turning out about 400 tons per week.

The Madison and Indianapolis Railway, earned nearly twice as much in September, this year, as it did last year. This road will probably be extended to La Fayette, and thence to connect with the Michigan roads. A road will also be constructed to the Ohio State line, and thence form a connection with the Ohio roads at Springfield, or some other favorable point, thus opening communication with Cincinnati and Lake Erie—and another road will, at an early day, be constructed westward towards Illinois—thus making Indianapolis a central point in the Railroad system of the West.

The Detroit Free Press says that arrangements have been made with the Buffalo and Mississippi Road to connect with the Michigan Central Road at the Indiana State line South of Niles. The road will then go through Laporte and Michigan city to Chicago, and thence to Galena. At the Indiana state line the road will be tapped, and thence go to La Fayette, Ia.

The connecting road from Chicago to Galena

will soon be commenced. The citizens of Chicago have taken near \$200,000 of the stock, and over \$100,000 were taken on the route. An agent is now, we understand, in Boston in behalf of the company, soliciting subscriptions to the stock, and he will be very likely to meet with encouragement.

Over 1500 men are, as we are informed, employed on the New York and New Haven Railroad. The whole work is under contract, and the work is progressing with great rapidity.

Three divisions of the St. Lawrence and Atlantic Railroad, of about 50 miles in extent, are in progress in the State of Maine, a part of which is to be completed within a year.

The receipts of the Housatonic Railroad, for the month of September, amounted to \$19,173 53. A semi-annual dividend of four per cent. has just been declared. This company deserves success. They have worked hard to construct and re-construct their road—and we hope they may realize rich returns.

The receipts on the Little Miami Railroad (in Ohio,) during the month of September, exhibit an increase of \$6,434 over the same month last year. In September, 1845, the entire receipts on this road were only \$6,607. This company is now engaged in good earnest in rebuilding their road, and they intend to have it one of the very best roads in the country—within two years.

#### Bridge Building, both Iron and Wood.

It may be recollected by our readers that we sometime since—see No. 23, June 5th—referred to a small treatise on this subject, by Mr. S. Whipple of Utica. We also previously published, in No. 19, for May 8th, a communication from an eminent engineer, highly approving of Mr. Whipple's work and system of Bridge building. At the close of the treatise above referred to was an intimation by the author of his intention soon to publish, "as a sequel" to what he then gave, "a set of working plans for bridges of different lengths and descriptions, both of wood and iron, with details, specifications, and general remarks;" and in accordance with that intimation he has put forth a neat little volume, including what he then published, of 120 pages, with 10 plates illustrating the subject, which ought to be in the hands of every engineer, bridge builder, and road maker in the country.

We may hereafter make extracts from the work, by way of calling the attention of our readers specially to it, but at present conclude this notice with the following remarks of Mr. Whipple upon the disaster of the "Dee Bridge,"—which fell under the passage of a Railway train; a few months since, with a melancholy loss of life,—and with a hearty recommendation of it to those having charge of railways, or engaged in bridge building.

The author says, in relation to "The Dee Bridge:"

A considerable degree of excitement has been caused within a few months in England, by the failure of a bridge over the river Dee, near Chester, during the passage of a railroad train, by which accident several lives were lost.

As the facts of the case may afford an instructive lesson upon the subject treated of in the preceding pages, I am inclined to state the most important of them, with a few accompanying remarks, before taking leave of the subject.

The bridge in question, was upon the plan called the "Cast Iron Girder Bridge."

In this plan, each track, or pair of ways, is supported by two cast iron Girders, or

beams, with their ends resting on abutments and piers, which, in the case of the Dee Bridge, are 98 feet apart. The form of the Girders is essentially that of the common railway bars, known as the  $\perp$  or  $\pi$  rail; the vertical "web" being two and one-eighth inches thick, by about three and one-half feet deep; the lower flange, twenty-four and one-half inches wide by two and a half thick, and the top flange, about seven and a half inches wide, by a little less than two inches thick; the whole cross section containing 160 square inches, and the whole depth being 45 inches.

In addition to this, are wrought iron suspension bars, containing 60 square inches of cross section, running obliquely downward from a connection at the ends, about 3 feet above the upper flange, (there being a rising portion at the ends to which such connection is made,) to the lower flange, at the joints of the cast iron part, 36 feet, or one-third the length of the girder, from the ends; the casting being in three pieces, connected by bolting through flanges, and by strengthening pieces at the points. Between the two joints, the suspension bars run horizontally, just above the lower flange of the girder.

One effect of these suspension bars is, to throw a great amount of thrust, or crushing force upon the top flange, in so much that the engineers who examined and testified upon the subject, upon the inquest held in relation to the lives lost by accident, generally concurred in the opinion that they rather weakened than strengthened the girder. Adopting that conclusion upon this point, which appears to be corroborated by experiment, let us examine whether the failure of the bridge, in connection with the other facts of the case, should inspire distrust, or confidence in the use of iron bridges for railroads.

By calculation according to formula deduced from experiment, a pair of girders is estimated to be able to sustain at the extreme or breaking point, 148 tons in the centre, or 296 tons distributed uniformly over their length. In this estimate, the testifying engineers concur with little or no variation. Now, the weight of a pair of girders, is about 70 tons, or, with other parts of the structure, about 90 tons. Mr. H. Robertson, (engineer,) estimates the effects of the engine and tender as "equivalent to 32 tons in the centre," which is equal to 64 tons distributed. Add to these, "25 tons of ballast," which was put on to the bridge just before the accident, and we see there was 90, 64, 25=179 tons upon the bridge, which was more than six-tenths of the actual breaking weight, supposing it all at rest, and acting equally on the two girders. But the action of the engine, and the vibration of the girders, (which must be considerable for a length between supports equal to 20 times the depth,) must be very important, though not capable of exact estimation. It is therefore not improbable that the girder was taxed to more than two-thirds of its extreme capacity under favorable circumstances.

Now, from one-quarter to one-third of the actual breaking strain, is all that any practi-



cal engineer estimates it safe to rely on cast iron to bear; whereas, in case of the Dee bridge, we see it exposed to a load of more than six-tenths of the ordinary capacity, besides the effects of motion, vibration, etc. It certainly cannot be surprising, then, that a failure took place. And so far from this failure amounting to evidence, or even an argument, against the safety of iron bridges, the fact that this is the first and only failure that has yet taken place, among "upwards of 100 similar bridges, either in use or in the course of construction, in England," some of which are doubtless, often exposed to strains exceeding half their absolute capacity to bear, seems calculated to inspire the fullest confidence, that, properly proportioned, so as never to be exposed to a stress of more than one-fifth or one-quarter of the average strength of the metal, iron bridges may be relied on with the utmost confidence.

We see that the Dee bridge contained some 70 tons or more of iron in the girders, for a single track of 98 feet stretch,\* besides 20 tons in the other work, which is nearly one-third of the actual breaking weight of the girders; and as much or more than they ever should or could with safety be exposed to.

The English engineers seem to me to have erred, in deducting the weight of the structure from the *breaking weight*, instead of the *safe load* of the girders, to obtain the effective strength.

Now, that the most eminent engineers, of a most scientific nation, should be obliged to avail themselves of the extensive employment of such a plan of structure as that, is evidence enough of a prevalent want of more light upon the subject of *Bridges*. And whether my labors in the field will have aided essentially towards supplying the deficiency, it is unnecessary for me to give a more direct expression of opinion, than will be afforded by respectfully offering these humble essays to the attention of the engineering profession.

#### Railway Carriages or Cars.

We perceive by the following description, given by the Illustrated London News, that prejudice, or custom is at length yielding to experience, and that the 8-wheel car is now likely to be introduced upon the English railways. We have been not a little surprised that the old—or early—style of car, upon four or six wheels, divided into three or four apartments, to contain six or eight passengers each, maintained its place on the English railways so long after the superior convenience and safety of the 8-wheel car was discovered. The Messrs. Adams have however opened the door for the introduction of valuable improvements, which will be adopted on most of the important lines.

We give a sketch of one of the improved railway carriages, just constructed by Messrs. Adams, of Fair Field Works, Bow, for the North Woolwich branch of the Eastern Counties' railway, and we consider the directors to have shown judgment in their departure from the common standard, to suit an increasing traffic, without adding to the length

\* I estimate the amount of iron for a like stretch upon my plans, at about 15 tons.

of their trains. These carriages are 40 feet in length, and 9 feet in width; the extra width being gained by building the carriage frames to the width of the ordinary step boards. The directors have thus succeeded in accomplishing more on the narrow gauge than has yet been accomplished on the broad gauge, where the carriages are only 8 feet 6 inches in width, by 28 feet in length. The extreme axles are 30 feet apart, and, being on eight wheels, these carriages are obviously safer than those on six wheels or on four.—Notwithstanding their length, they will pass a curve of 200 feet radius by means of the flexibility and arrangement of the springs, which permit the wheels to traverse laterally. The buffer heads are also made to radiate with the springs or curves, so that they press firmly under all circumstances. The carriages are fitted up in four compartments; one first class, with couches all around, and a table in the centre; the other three, second class. They will carry about 110 passengers.

Among the advantages which these improved carriages present over ordinary carriages, are—

1. Greater steadiness at high velocities, the great length of the body maintaining its equilibrium independently of the wheels.

2. Diminution of friction, by the easy spring permitting free rolling movement of the wheels, without pressing the flanges against the rails, whether on curves or on nominally straight lines. Also by diminution of the gross weight of the carriages, as compared with the passengers carried.

3. The proportional diminution of requisite engine power, equal to fully one-third as compared with the traction of six-wheeled carriages.

4. Reduction of the length of trains, by increasing the breadth of the carriages.

5. Greater safety; since one wheel breaking out of eight involves far less risk than one out of four or six. The almost impossibility of getting off the rails, on account of the perfect action of the springs, which will keep the wheels turned to the plane and curves of the rails, whether regular or irregular, instead of confining them to the plane of the carriage.

The allowance of a passage way through the whole of the interior of the train for the guards, would be important, in case of the illness of a passenger, or a fire, or other accident. In second and third class carriages, the arrangements for passing through would be as in the pit of a theatre—a passenger could move aside so as not to lose space. In a first class carriage, a passenger way, 1 foot 6 inches wide, would be left, and passengers' cabins arranged on each side, facilitating the use of small private apartments, where required for long journeys. The communication through the whole train would permit the collection of tickets during the journey. At present, a journey of 50 miles is frequently performed in little more than an hour, with some additional risk from high speed; and, at the end of the journey, a quarter of an hour is wasted in taking tickets.

#### Railway Statistics of England for 1846.

We find the following extract from the Statistical Journal for September, in the Railway Record. It shows that the total receipts of these 23 roads, for six months, was over \$20,000,000.

"In the Statistical Journal for September, is a table of the revenue receipts, increase of traffic, dividends, etc., on railways, for the half-year ending December, 1846, compiled by J. Wishaw, Esq., who is, no doubt, well known to the majority of our readers, as a frequent speaker at railway meetings. From this document we present to our readers the following abstract."

**Bristol and Exeter.**—On this line, (76 miles included in the Great Western) the receipts were £49,683 2s. 3d., being an increase on the corresponding half-year of 1845, of £1,144 10s. 3d. The dividend declared was £1 13s. 9d., which left a balance in hand of £2,055 15s. 5d. The line is leased to the Great Western at a fixed rent of £71,957 per annum, and a toll of 4d. per mile for every passenger travelling upon it, and the same for every ton of merchandize carried.

**Dublin and Drogheda,** (35 miles)—The receipts, £21,408 17s. 3d., being an increase on the corresponding period of 1845, of £644 15s. 3d. Dividend declared at £3 14s. per cent. It appears there is a falling off of 10,000 in the third class passengers.

**Eastern Counties** (161 miles)—The total receipts were £250,056 8s. 9d., being an increase over the corresponding period of 1845 of £69,956 12s. 6d. The dividend declared was 10s. per share, leaving a balance of about £329 in hand. During the last six months, the increased length of road maintained was 59 miles.

**Edinburgh and Glasgow** (46 miles)—The receipts were £111,087 16s. 6d., being an increase of £26,570 4s. 10d. over the corresponding period of 1845. The dividend declared was 8 per cent., and the balance after its payment, £12,983 2s. 11d.

**Glasgow, Paisley & Greenock** (22½ miles.)—The receipts were £28,982 18s. 3d., being an increase over the corresponding period of 1845 of £2,479. The dividend declared was 6s. per share on £25 shares, and the balance left in hand £716 7s. 3d.

**Glasgow, Paisley, Kilmarnock and Ayr,** (51 miles)—The total receipts were £60,645 6s. 6d., being an increase of £7,000 on the corresponding period of 1845. The dividend declared was 7 per cent., and a balance in hand, after paying the dividend £2,095 16s. 6d.

**Great Western** (240½ miles.)—The total receipts were £513,846 15s. 10d., the dividend 8 per cent., and the balance left in hand £7,853 14s. 10d. This includes the receipts on the Bristol and Exeter line. There was an increase in the traffic of the half year of 92,598 passengers, and 23,976 tons of goods, but no apparent increase in the receipts.

**London and Blackwall** (4 miles.)—The total receipts were £43,801 6s. 9d., showing an increase over the corresponding half year of 1845 of £3,548 4s. 3d. Dividend declared 4s. per share.

**London, Brighton and South Coast** (112 miles).—The total receipts were £226,711 7s. 11d., the increase over the corresponding period of 1845 £48,984 6s. 5d., and dividend declared 7 per cent. In the course of six months the extent of this line was nearly doubled.

**London and North Western** (362 miles).—the total receipts were £1,110,795 0s. 10d. the increase over the corresponding period of 1845 £61,566, the dividend declared 10 per cent., and the balance left in hand £105,722.

**London and South Western** (99 miles).—Total receipts, £196,323 5s. 2d., dividend declared, £2 2s. 6d.; and balance remaining in hand, £200. The receipts somewhat diminished in consequence of the reduction of passenger fares.

**Manchester and Leeds** (117½ miles).—The total receipts were £187,524, the increase over the corresponding period of 1845 £3388, the dividend declared 7 per cent., and the balance remaining in hand after paying the dividend £41,124. The opening of the Ashton branch during the six months tending to increase the receipts, and of the Sheffield and Manchester, and Leeds and Bradford lines to diminish them. The receipts were also affected by a reduction in the passenger fares.

**Manchester, Sheffield and Lincolnshire** (49½ miles).—The receipts on this line were £55,277 15s. 5d.; the increase in the corresponding period of 1845 £19,875 10s. 3d., and the dividend declared 5 per cent.

**Maryport and Carlisle** (28 miles).—The total receipts were £15,151 9s. 10d., being an increase on the corresponding half year of 1845 of \$4,865. No dividend declared.

**Midland** (328½ miles).—The total receipts were £401,790 19s. 4d.; the increase over the corresponding period of 1845 £55,498 2s. 10d.; the dividend declared, 7 per cent., and the balance left in hand £13,040 8s. 1d.

**Newcastle and Carlisle** (61 miles).—The total receipts were £57,156 5s. 1d.; the increase over the corresponding period of 1845 £9,723 6s. 2d., and the dividend declared 5½ per cent.

**Norfolk** (58½ miles).—The total receipts were £45,639 1s. 2d.; the increase over the corresponding period of 1845, £7,158 17s. 6d.; and the dividend declared, 3 1-2 per cent. on consolidated stock.

**North British** (72 1-2 miles).—The receipts for seven months were £53,281 15s. 5d., the dividend declared 5 per cent., and the balance left in hand, £84 5s. 3d.

**South Devon** (15 miles).—The receipts, from the opening of the line to Teignmouth, on the 29th of May, 1846, were £15,620 5s. 7d. No dividend declared.

**South Eastern** (140 1-4 miles).—The receipts were £236,404 0s. 5d., the increase on the corresponding period of 1845, £51,860 8s. 9d., the dividend declared 2½ per share on the paid up shares, and the balance remaining in hand, £7,454 7s. 3d.

**Ulster** (25 miles).—The receipts were 18,987 2s. 5d., and the dividend declared £1 per share, leaving a balance in hand of £1,130 7s. 8d.

**York and Newcastle** (149½ miles).—The receipts were £158,181 2s. 9d., including the receipts on the Richmond branch, opened in September; the increase over the corresponding period of 1845 £21,051 14s. 6d., and the dividend declared 9 per cent., leaving a balance in hand of 504 19s. 4d.

**York and North Midland** (162 1-2 miles).—The total receipts were 186,752 0s. 10d., and the dividend declared 10 per cent., leaving a balance in hand of 17,213 17s. 9d.

The total length of the above lines is 2,340½ miles; and the receipts during the last half of the year 1846, were 4,036,145 4s. 3d.

#### Railway Across the Isthmus of Panama.

For many years the grand projects of either cutting a navigable ship canal, or constructing a railway across the Isthmus of Panama, to join the Pacific with the Atlantic, has been the study of several eminent engineers—English, French, and Italian. Plans and estimates have been made out of the expenses and practicability of so important an undertaking, but hitherto so much opposition had been experienced by each party from the Government and authorities in carrying out the project, that, for a time, it has been in a state of abeyance. Several French adventurers have been foremost in this speculation; and, after very unsuccessful communication with the Government, they have at last succeeded in obtaining a concession to lay down a railway across the Isthmus, under certain conditions—that at the expiration of the term of the lease it then becomes the property of the State, which, however, can grant a new lease to the company. From the report of the engineer, it promises to be a very lucrative speculation, and can be carried out with but little obstacles, as the country is of a nature that the cuttings and embankments, tunnels, etc., will be without much difficulty, and a comparatively low expense, compared with European lines. The company will be partly composed of English, French, and Mexicans—the Government granting the land through which the line will run. After mature deliberation, the cutting of a canal has for the present been abandoned, although its practicability is beyond doubt, and may, some years hence, be accomplished. The establishment of a railway will afford not only a rapid transit for passengers and goods, but to the mining interest of Chili it will be most important, as also for the city of Mexico. By the facilities afforded by the South, Pacific Steam Navigation from Valparaiso, calling at all the ports between that Liverpool of South America, and Lima, etc., the miners will be able to overcome the great drawback, which has hitherto been so severely felt—the want of a quick means of transporting the metal and ore. Arrangements are making by the Royal West India Mail Steam-Packet Company to call at Chagres and Vera Cruz twice a month, on and after November next, instead of once, as at present—an advantage that, no doubt, will be highly appreciated by all those embarked in mining adventures in Mexico, Chili, Peru, etc.

It is possible that the Americans may also be somewhat interested in the management of the railway across the Isthmus of Panama when it shall be built, although they appear to have been forgotten by the writer of the above paragraph, which we take from the London Mining Journal of September 11th.

#### Railway Train Signals.

There appears to be much interest manifested in England at this time in relation to the introduction of improvements in the mode of communication between the guard, or look-out men upon the train, and the engine driver. There seems to have been much difficulty upon this point; and that accidents have occurred in consequence. Various plans have of late been suggested—some of which we give to our readers that they may have the benefit of them, if superior to our simple and efficient mode of a cord running over the tops of the cars to the engine, where it is connected with a bell—thus giving the conductor an easy means of stopping the engine, if necessary. One of the several plans suggested is described as follows by the Morning Herald.

"We yesterday," says the writer in the Herald, "availed ourselves of an opportunity of inspecting, at the carriage manufactory of the Messrs. Adams, near Stratford, a break van, in which provision is made for enabling the guards of a train to communicate with each other, and with the driver of the engine. The mode proposed for effecting this is very simple. One of the ends of the break van has an elevated compartment, with glass windows before and behind, through which, when the van is placed next the tender, the guard can command a view of the whole train, and also of the driver. It is proposed to have one of these vans next the tender and one in the rear of the train, and that by means of a strong length of catgut running along the sides of the carriages, a communication shall be kept up between the two guards. The way in which this is to be performed is, we understand, as follows: The under guard in the rear break van is to have in his charge a roller on which the catgut will be wound, and it will be the duty of the head guard, immediately the train is ready to start, to walk from the rear of the train, and, in his way to his own break van next the tender, insert, by a very simple contrivance, and without stopping, the catgut in one or more rings fixed to the sides of the top of each carriage. The catgut will then be attached to a strong spring in connection with an alarm in a break wagon next the tender. The roller on which the catgut is to be wound in the rear break van will be connected with a weak spring, having sufficient play to prevent the contracting and expanding motion of the buffers acting upon the strong spring in the front break van, and letting loose the alarm. If the guard in the rear desires to communicate in the day time with the one in the front, the alarm is sounded and the required signal given by flag. If by night, the signal is given by lamp. In this way the guard in the rear will be able to communicate almost instantaneously with the guard in the front of the train, and the latter, by a communication with the driver through the mode we suggested yesterday, viz: a chain or wire in connection



with a steam whistle on the engine, can exhibit a red flag or red light, and stop the train in the shortest time practicable. If it be desirable to place the passengers in communication with the head guard in the front brake van, the catgut might be placed within their reach. The head guard would readily distinguish the passengers' signal from that of the rear guard by the absence of a flag or lamp signal in the rear break van. We are quite aware that the objection to this apparently simple mode of signalling from all parts of the train to the head guard will be that the catgut must be withdrawn from and reinserted in the rings whenever a carriage is added to or taken from a train. This objection might be surmounted by having the catgut in lengths, with spring clasps of a form that would run easily through the rings. The merit of this contrivance, which seems to possess simplicity and effectiveness, belongs to Mr. Grimshaw, the superintendent of the Bishopsgate station of the Eastern Counties."

#### Copper Mining and Copper Ore.

We have heard much of the "copper region," and of "copper stocks," of Lake Superior, and have seen some remarkable specimens of the metal brought from there as samples, yet we have seen nothing equal to the following statement, which we find in the last number of the American Mining Journal, as an indication of the success attending the mining operations of those engaged there. If the statement herein made be true, that these 467 tons of ore will produce as much metal as 3600 tons of the dressed ore of the Cornish mines, or as 7200 tons of that ore as raised from those mines, and the supply of this ore is as inexhaustible as it is represented, then we may look for a great reduction in its cost, and immense increase in its use in all departments of business! It must not be forgotten that we are not alone in our discoveries of copper mines—equally valuable mines have been discovered in Australia, and large investments of English capital have been made in them—of course there is to be competition in the business, and consequently increased supply and reduced prices and profits.

The writer says:—"The prospects of the Pittsburgh and Boston Copper Harbor company, through their famous 'Cliff mine,' are in the highest degree cheering. This mine was discovered in the autumn of 1845, at a season so unfavorable, as not to afford time sufficient for the usual preparatory mining arrangements of the succeeding winter; and still, in less than two years from the period of its discovery, the produce has not only equalled the whole cost of working it, but will undoubtedly yield a profit to the proprietors! The history of mining hardly affords a parallel to this mine; for not only two, but even five or more years are generally requisite, with heavy outlays, before mines in general are enabled to cover expenses, and give dividends. The most astonishing results are even now produced, through the abundance and richness of its native metals; and the wonders of Aladdin seem to be realized through the extraordinary developments that are making in it.

From reliable data, it appears, that the product of this mine for the present season, up to the 25th of September, delivered at the

lake shore, equals 467 tons of masses and copper rock.

Of this, there have been received at the seaboard, mostly at Boston, . 209 tons. There are on the way to Boston—this side of Buffalo, . . . 178 " And there were at the lake shore, Sept. 25th, . . . 88 "

Making a total of, . . . 467 "

Much more than half of the shipments consists of masses. In order to show this, it is sufficient to state, that the 209 tons named above, consisted of barrels of copper rock, weighing 361,506 lbs. and the masses weighed 296,266 lbs.; and that these proportions continue in the other 258 tons. The weekly return of the clerk of the company, at the mine, for the week ending Sept. 18th, was—

40 barrels,	14,526 lbs. net.
18 rocks,	17,132 "

Total, . . . 31,658 "

This week's return is smaller than usual, on account of the masses taken out being so large, as to require more time to cut them into suitable pieces for shipment.

The returns for the week ending Sept. 25, gave—

37 barrels,	13,774 lbs. net.
26 rocks,	31,030 "

Total, . . . 44,804 "

The clerk says:—"We would have sent 25 tons this week, but this being a wet day, prevented us from doing so. The mine wears the same appearance as usual. There was a mass of about 20 tons blasted, down in the north end of the lower drift on Friday night, but we cannot tell how long it will take to cut and blast it into smaller pieces."

It is understood that the drift where this mass was found, was 60 feet below water level; and it, of course, furnishes conclusive evidence of the richness of the mine at that depth—a most important point in the valuation of the mine.

The company have sold the masses and copper rock to smelters, for 16 cts. per lb., for the copper they will produce. From average samples, it has been determined, that the masses yield about 80 per cent. of copper, and the ore, in barrels, about 60 per cent.—Having this data for a guide, the 467 tons must yield to the company nearly \$100,000.

Allowing that these 467 tons will give 300 tons of pure copper—a low estimate—the same would be equal to about 3600 tons of the dressed ore of the Cornish mines, or more than 7200 tons of ore as raised from those mines.

From the great richness of the copper rock, it is right to suppose that a large quantity of inferior quality has been raised, that remains at the mine. This is so, and the quantity is represented as being several thousand tons in weight. Hitherto, for want of proper machinery, this rock has not been reduced; but it is supposed that a suitable apparatus has, by this time, been erected at the mine, and that, if it should operate favorably, it will add much to the revenue of the company.

There appears now to be nothing in the way of this mine's continued successful operation. It has been already sufficiently opened, to show that sufficient productive ground is yet untouched to keep a large mining force at work for many years, and that no bounds have yet been found to the copper at any depth to which excavations have been made."

#### Smithsonian Institute.

The following exposition of the plan adopted for the management of this Institution, will, we doubt not, be read with interest, and therefore we give it a place in the Journal. We copy it from the Mining Journal.

From a paper read by Professor Henry before the Association of Geologists and Naturalists, at Boston, on the 25th ult., we learn that Hugh Smithson was born in England, in the year 1868. He was educated, says the learned professor, at the University of Oxford—was a man of amiable disposition, and devoted to science. He was the best chemist in Oxford, and, after his graduation, became the rival of Wollaston in minute analysis, and possessing most extraordinary skill in manipulation.

He resided most of the time abroad, and was an illegitimate son of the Duke of Northumberland, who recognized him and left him a handsome property. He was the author of upwards of twenty original memoirs, on various subjects of science. He appears to have been proud of his scientific attainments, and on one occasion wrote thus: "The blood of England flows in my veins—on my father's side I am a Northumberland—on my mother's I am related to kings. But this is of no consequence. My name shall live in the memory of mankind, when the titles of the Northumberlands and Percys are forgotten." Professor Henry said he could find no evidence that he had written this in view of the establishment of an institution.

Smithson died at Genoa, in the year 1829, leaving his property to his nephew, the son of his brother, with a clause in his will leaving it to the United States, for founding an institution for the increase and diffusion of knowledge among men, in case the nephew died without issue. He did so die, and the money, about \$500,000, came into possession of our government. It was idle to say that this money was lost, when it was lent to Arkansas and other States. It could not be lost for the national government held it in trust, and having accepted the trust was bound to see it devoted to the purpose designed in the will of Smithson. Various schemes had been proposed to carry the plan into execution, but none was definitely decided upon until a year since, when an act of Congress was passed organizing the institution. Professor Henry then explained his own connection with the Smithsonian Institution, which was entirely unsolicited on his part. He mentioned the several plans which had been suggested for the organization of the institution, as well as that which had been finally adopted as a compromise. According to this,

To increase knowledge. It is proposed, 1st, to stimulate men of talent in every part of the country and of the world, to make origi-

nal researches by offering suitable rewards; and, 2d, to appropriate annually a portion of the income for particular researches, under the direction of suitable persons.

To diffuse knowledge. It is proposed, 1st, to publish a series of periodical reports on the progress of all branches of knowledge; and, 2d, to publish occasionally separate treatises on subjects of general interest.

No memoir, on subjects of physical science, to be accepted for publication, which does not form a positive addition to human knowledge, and all unverified speculation to be rejected.

Each memoir presented to the institution, to be submitted for examination to a commission of persons of reputation for learning in the branch to which the article pertains, and to be accepted for publication, only in case the report of the commission is favorable.

The report on the progress of knowledge, to be furnished by collaborators, consisting of men eminent in the different branches of knowledge. These reports to consist of three classes—physical, moral and political, literature and the fine arts.

One-half of the income of the institution is to be devoted to carrying out this plan; the other half to the increase and diffusion of knowledge, by means of collections of books and objects of nature and art.

The building, which is slowly in progress, is to be erected, in considerable part, out of the interest which will accrue upon the interest, accumulated upon the original sum since it has been in keeping of the United States.

#### Metals and Ores of America.

We find the following brief statement in the *American Mining Journal* of 27th October.

At the last meeting of the Association of American Geologists and Naturalists, Dr. T. C. Jackson, the president of the society, in an essay on the subject, explained the state in which the metals and ores of America are found:

**Gold**, nearly pure. The author explained the different methods of washing and separating the metal in the United States and Brazil, and that the greatest gold deposit in the world is in the eastern slope of the Oural mountains.

**Silver**, in the pure or native state, is found in many places, but more generally in combination, as with copper, lead, zinc, etc. Native silver and native copper are occasionally found in the same specimen. Such is the case with the metals as they occur in the Lake Superior copper.

**Native copper** occurs in the igneous rocks, as the basalt, the greenstone, amygdaloid, etc.

**Tin** has not yet been found in quantities which justify the attempt at working it in the United States. The only known localities are in New Hampshire.

**Lead**, as an ore, is next in value to copper. It is generally found in combination with sulphur, constituting the galena, or sulphuret of lead. In the western States the lead is nearly a pure sulphuret, but often contains a little silver, sometimes amounting to one-half per cent. Five to seven pounds of silver have occasionally been obtained from a ton of lead ore.

#### Buffalo and Mississippi Railroad.

Continued from page 710.

#### GRADES.

In Ohio, we have no data to show what the individual grades would be; the records of Mr. Hopkins' survey having been burnt at the time the warehouse of Mr. Richard Mott, in Toledo, was destroyed by fire. Mr. Hopkins alludes to them in his report, as follows: "From the profile and the accompanying table of grades, you will perceive the grades are very variable, but are generally light, not exceeding the ratio of 32 feet per mile, except in three cases, two of which I concluded to change from 40 to 32 feet per mile, and made my estimate accordingly. The other which occurs between the starting point in Toledo, and the crossing of the Wabash and Erie Canal cannot be materially altered, on account of the elevation necessary to carry the road over the Canal."

The length of the grade last mentioned in this quotation, extending from the commencement of the line in the city to the canal, I assume to be four-tenths of a mile, and the inclination cannot be reduced, without incurring considerable extra cost, in laying the line near Swan Creek, perhaps crossing it and passing over the Canal between Lock No. 3, and the Aqueduct over the Creek.

At the Ohio and Indiana line, the elevation of the road will be 394 feet above Lake Michigan, and about 407 feet above Lake Erie, calling the difference of level between the Lakes 13 feet. Assuming the point of departure in Toledo, to be 9 feet above Lake Erie, and the ascent of the first grade thence to the commencement of the flat country, which extends westward to the St. Joseph's, to be at the rate of 40 feet per mile for a distance of six-tenths of a mile, we get 33 feet to be deducted from the 407 feet, leaving 374 feet to be overcome by grades ascending west, in a distance of little less than 66 miles, to unite the Ohio survey with that of Indiana. Should the grade, where the road would cross the St. Joseph's, be 200 feet above Lake Erie, and the ascent over the flat country uniform; the rate of inclination, would be for this part, about 3 feet per mile: leaving 11 miles, requiring an average grade of nearly 16 feet to the mile, between the St. Joseph's and the junction with the Indiana portion of the road.

In Indiana we have the grades given in the reports, from the Ohio line to the point of divergence 12 miles west of Michigan City, all of which have been arranged anew in the following table of grades and distances, making a few slight alterations, which seemed to be required, as corrections; and to make the table accord more nearly with the profiles.

The table is made continuous from Toledo to Chicago by way of Bristol, or northern route; instead of the southern route through Goshen, a table of which follows the main table; that is, the columns of distances, lengths of grades, and amounts of ascents and descents, are made continuous by the Bristol route, westward from Elkhart village, instead of that by way of Goshen. It

will be seen that both routes are continuous as far as Elkhart village, where owing to the difference in the footings, only one of the routes could be made continuous thence to Chicago, without the insertion of the same matter in the report a second time. The part of the table west of Elkhart village, *per se*, is common to both routes, and nothing in this part is affected by taking one in preference to the other, except the footings; and it is easy to change them, to apply to the Goshen route, if there should be occasion, by adding or deducting the difference found in the footings of the two routes at Elkhart village. By the comparison of these footings at the village, we are enabled to appreciate the advantages or disadvantages of either line over the other, in respect to the several items of distance, length of grades, and amounts of ascents and descents.

By the table we see that the maximum grade in Indiana will be 44.16 feet per mile, with the exception of the steep grades, on the 9th division, between Laporte and Michigan City, where we have a maximum grade of 73.45 feet per mile. On the locomotive stages, where the former grade and those approximating to it occur, engines of extra power should be provided for propelling what would be an economical load for the common engines over the more level parts of the road. On the 9th division, the heavy trains arriving at Michigan City from Chicago, must be broken up, and the parts severally conveyed by single engines to Laporte, where new trains could be made up, adapted to the grades and engines, thence to Toledo. Unless the trains are broken up at Michigan City, an assistant engine will be required at the steep grades on the 9th division, which fortunately are in contiguity, and could all be tended by one engine. The latter method of overcoming these steep grades, would be the more economical as the transit increased.

The grades beyond the diverging point 12 miles west of Michigan City, to Chicago; cannot exceed a moderate rate of inclination, and may for our present purpose be considered as a dead level.

The aggregate lengths of the ascending, descending and level grades, from the Ohio and Indiana line, west to Chicago, are shown at the foot of the table, and are as follows:—

Aggregate length of Level Grade.....	50.10 Miles.
" " Grade ascending west.....	39.10 "
" " Grade descending west.....	81.08 "
	170.28 "

#### Classing and tabulating the grades we have;

	Miles
For Grades under 5 feet per mile ascending west.....	7.92 .....
For Grades under 5 feet per mile descending west.....	28.51 .....
For grades between 5 and 10 feet per mile ascending west.....	25.53 .....
For Grades between 5 and 10 feet per mile descending west.....	24.62 .....
For Grades between 10 and 20 feet per mile ascending west.....	13.88 .....
For Grades between 10 and 20 feet per mile descending west.....	16.23 .....
For Grades between 20 and 30 feet ascending west.....	9.97 .....
For Grades between 20 and 30 feet de-	



ascending west.....	2.44
For Grades between 20 and 30 feet ascending west.....	8.89
For Grades between 30 and 40 feet descending.....	3.61
For Grades at 44.00 feet descending west.....	0.79
For Grades at 44.16 feet descending west.....	2.09
For Grades at 45.38 feet descending west.....	0.15
For Grades at 48.00 feet ascending west.....	0.61
For Grades at 73.45 feet descending west.....	2.31

Total miles of ascent in Indiana,.....39 10  
And descent,.....81.08

## CURVES.

The amount of curvature, within the State of Ohio, was not mentioned in Mr. Hopkins' Report, he only alluded to the very small quantity required, considering the total length of the line; and that there would be none with a radius less than 3000 feet.

In Indiana, the Engineers have reported the quantity of curvature and straight line.

Tabulating the result of the above table, we obtain as below, the aggregate length of curvature in Indiana, expressed both in miles and degrees; giving the curvature, as stated in the reports, for the south route west of Michigan City, instead of the Lake route to Chicago, where the curvature has not been ascertained by any survey.

Radius,	Degrees of Curvature,	Miles.
500 feet there will be	90.75	equal to 0.15
1637 "	36.96	" 0.20
2465 "	1332.57	" 12.62
3820 }	"	"
3319 }	209.08	" 2.64
5729 "	323.69	" 6.13
Straight Line	"	133.77

Total degrees of curve 1993.05 tot'l dist. of 155.51

## ADVANTAGES OF THE LINE AND ITS TRAFFIC.

In considering these subjects, it is important that a correct and satisfactory exposition should be made, to give confidence that the road would pay at the outset; and that afterwards there would be no danger of its being drawn off through other channels.

To guard against the latter occurrence, I would propose that the road should be built with extra stability, and be furnished with locomotives capable of running at high velocities. This course would do much in discouraging the opening of any other line of communication, which would directly interfere with the legitimate business of the road.

It is believed, that the road as surveyed, is as short as any practicable line, with grades as favorable, which can be found passing across the neck of the peninsula of Michigan, from the western extremity of Lake Erie to the south-east bend of Lake Michigan. Any other course north of the one adopted, I have understood would pass over a more elevated country; and would, unless terminated at the same points, be attended by the want of convenient and ample harbors at its termini.

Toledo has the natural advantage of being located at the most westerly point of Lake Erie on Maumee River, at the head of Maumee Bay, easily approached by vessels drawing above 9 feet of water. Its position is

such, that vessels coming up the Canada side of the Lake, when at point Pelee, allowing they could cross the long sand spit which projects some six or eight miles into the Lake, would be at the same distance from Toledo that they would be from Detroit. If they came up the middle of the Lake to Middle Island, they would be 8 miles nearer Toledo than to Detroit; and should they coast the south shore of the lake, would be at Sandusky Point 13 to 16 miles nearer Toledo than Detroit, (using Farmer's map of Michigan for the distances.) I suppose the greater number, nearly all the steamers, pass by the latter route, for the purpose of stopping at the numerous artificial harbors, scattered along this shore, to leave and take in passengers and freights; or in case of storms to obtain a shelter; consequently the majority of the boats could make Toledo at from 25 to 30 dollars less cost than they could Detroit, and save in time 2 hours. This saving of time and exposure on the Lake, would deter many from taking the Detroit and Central Railroad route, who were bound for Chicago.

At Toledo there are two Railroads, one in operation, the other projected and partly executed, they leave in opposite directions; the Erie & Kalamazoo, the one in operation, extends in a north west direction towards the interior of Michigan as far as Adrian, 33 miles from Toledo, where it meets the Southern Railroad, now open from Monroe to Hillsdale, 68 miles in length. The Erie & Kalamazoo Railroad turns into Toledo, annually, a large quantity of wheat and other produce. In 1841, this road drew from Michigan produce to the amount of \$530,000; of which, there were 127,000 bushels of wheat valued at \$120,000; and 45,748 barrels of flour valued at \$228,920.

The other Railroad, 31 miles long, leaves Toledo in the direction of Lower Sandusky, and is a part of the Ohio Railroad. This part was begun a few years ago and afterwards abandoned. Recently it has been purchased by ..... in behalf of a new company, who intend, I understand, to complete it without delay. At Lower Sandusky, it will connect with another portion of the Ohio Railroad, to be laid out to Sandusky City, and also with a short link to be inserted, connecting it with the Mad River Railroad at Tiffin.

The two divisions of the Ohio Railroad from Lower Sandusky to Sandusky City and from thence to Cleveland, where at the same time purchased by other individuals, and it is supposed both parts will be immediately undertaken.

These Railroads completed to Cleveland, it would not be long before they would be extended and united to the New York and Erie Railroad at Dunkirk, should that road terminate at that point. From thence they would be continued to Buffalo and unite with the line of Railroads to Albany and Boston; completing, in one grand trunk, a road 1197 miles long.

The statement below, shows in comparison the lengths and the assumed practicable

time of passage, of the principal Railroad and Steamboat Lines, contemplated or in operation between Galena in Illinois, and Boston and New York.

## Comparative lengths and times of passage of Railroad and steamboat lines from—

	Miles.	Hours.
Galena to N. York, via New York and Erie Railroad.....	1100	52
Galena to Boston, by Railroad.....	1197	56
Galena to Boston, via Welland Canal and Ogdensburg Railroad.....	1278	97
Galena to Boston, via Upper Lakes and Buffalo and Albany Railroad.....	1572	133
Galena to Boston, via Michigan Railroad and Lake Erie.....	1005	76
Galena to New York, via Upper Lakes and New York and Erie Railroad.....	1484	127
Galena to Boston, via Upper Lakes and Welland Canal.....	1662	161

Lake Erie opens at Cleveland 32 days earlier on the average of 9 years, than it does at Buffalo; and much earlier than it does at Dunkirk. The Welland Canal also is generally acknowledged to be navigable two or three weeks sooner than the Erie Canal, and about as much sooner than the opening of the navigation at Buffalo and Dunkirk; these facts make it quite certain, that large quantities of wheat, flour and other products of the west, will be forwarded over the railroads and through the Welland Canal, to Lower Canada and the sea-board in the spring and fall of the year.

The Wabash and Erie Canal unites with Lake Erie at Toledo, and runs 87 miles to the eastern boundary of Indiana, thence through Indiana, via Fort Wayne, Logansport, and Terre Haute to Evansville, on the Ohio River.

The Miami Canal, in Ohio, connects with the Wabash and Erie, at a point about 68 miles from Toledo, and terminates at Cincinnati. These canals are now completed within the State of Ohio, and that part of the Wabash and Erie Canal, not finished, within the State of Indiana, will soon be opened under the arrangements made last winter, between the State and the Foreign Bond holders.

From Laporte, under the conditional supplementary charter, granted to the company last winter, it is proposed to run a railroad to Lafayette, on the Wabash and Erie Canal, a distance of about 85 miles; thence to be continued to the Illinois line in the direction of St. Louis, a further distance of about 40 miles, where it would probably join the projected Northern Cross Railroad, passing through Illinois, from Danville via Springfield to Quincy, on the Mississippi River, intersecting the projected great Central Railroad, at Decatur. I have understood from good authority that a number of miles of this Northern Cross Railroad was under contract during the last year.

At the Illinois line, the road would be within the limits of the great coal field of Illinois, and in the vicinity of valuable beds of iron ore and sandstone, the latter suitable for grindstones and for architectural purposes. The ore is found in Vermillion county, Indiana. The sandstone in Warren county; and borings for salt have been made

with success in Fountain county, Indiana, and near Danville in Illinois.

It is said, the country from Laporte to Lafayette is a dead flat, and that the Railroad could be made straight: the country, however, I understand, is new, and would not in its present condition furnish much traffic, being thinly settled, consequently the road must on its being opened, depend chiefly for its support, on the through business that would come from the central and lower portions of Illinois and Indiana.

At Lafayette the line would soon be joined by the Madison and Lafayette Railroad, leading from Lafayette through Indianapolis to Madison on the Ohio River, 92 miles below Cincinnati, and 417 miles above the mouth of the Ohio, this road has been commenced, and is about to be opened from Madison to Indianapolis, 50 miles being in use; the other portion from Indianapolis to Lafayette is only a projected road, but is greatly wanted for the accommodation of the numerous emigrants who traverse this part of the country, on their way towards Lake Michigan and surrounding states; for the common roads here are of the most ordinary description; at least, such I found to be the great thoroughfare from Logansport to Indianapolis on my return to the east from Michigan City, the last winter.

It is the prospective value of the line to Lafayette, or some other in a direction more westerly, in conjunction with the important local business that attaches itself to Laporte, that forbids an attempt to mend the main line here, by cutting off the obtuse angle made by laying the road through Laporte in its course to Michigan City.

Michigan City must become a very important station on the line, because of its harbor and position at the south-eastern bend of the Lake; well calculated for a point of departure for such passengers and freight as are destined for the several ports in Wisconsin Territory, and possibly for a line of communication to the northern extremity of Green Bay, and over the country to the south shore of Lake Superior. The distance from the City across the Lake to Milwaukee, is but 7 or 8 miles further than it is from St. Joseph. And taking into consideration the extra length of the Central Railroad (202 miles) over that from Toledo to Michigan City, (186 miles) passengers can be carried cheaper to Milwaukee from Toledo, than they can from Detroit, the difference in the total distance being 8 or 9 miles in favor of the city route.

It would appear, from the information I gathered while at Michigan City, that the position of that place was more favorable for the construction of a permanent and safe harbor, than any other site at the head of the Lake; for the reason that the sand and shingle composing the beach, had but little tendency to move one way more than the other; the action of the waves, during the prevailing strong winds, being nearly perpendicular to the shore, would cause an equality of action on the beach, which would not have place on either side of the Lake.

On the sides, these sweeping winds cause an accumulation of sand and shingle on the northern side of the long jetties constructed at the harbors; and in a few years these works of art are overreached by the accumulation, and a further extension demanded to keep the harbors open. It is this balance of forces at Michigan City which Major Bowes, of the U. S. Topographical Engineers, who has charge of the government works here, assured me was greatly in favor of establishing one of the most stationary harbors at this end of the Lake.

The General Government commenced operations here in the form of surveys and estimates, about the year 1835, when an appropriation of \$20,000 was granted. In 1836, Lieut. T. B. W. Stockton estimated the amount of money required to complete the harbor, at \$150,000. The appropriation for the harbor improvement, as recommended, was for the present year, \$40,000—more, I think, than was proposed for any other single harbor on this Lake.

In the winter season, the travel and business from the State of Michigan, destined for northern Illinois, Wisconsin and Iowa, would naturally be concentrated here, and contribute at the outset in no ordinary degree, to the business of the road hence to Chicago (50 miles). This travel would annually increase, at least, in the ratio of the increase of the population of Michigan, aided, moreover, by the annual increase of the population of Upper Canada.

Should the city be avoided by a portion of the Michigan travel, the road would necessarily intercept it somewhere west of Toledo, and increase the receipts according to the extra distance it would pass on the road. That portion of the travel bound for the middle and southern portions of Indiana and Illinois, would pass on the main road to Laporte, where it would take the Lafayette branch; provided there was no other branch leading from the main stem, to divert it into other channels: a case which cannot occur without the consent of the corporation for a period of 15 years, if the late supplementary act is accepted by the company.

The geographical position of Chicago for a city, has from its origin been set down as auspicious, with rich prairies extending to the south-west, west, and north west across the country to the Mississippi River; important as a point where many long lines of intercommunication must unavoidably converge, coming in from all points of the compass, bearing the rich products of Forests, Mines and Agriculture; and it is quite apparent at the present time, that what was prognosticated at its birth, is actually taking place. We have here the termination of the great Illinois and Michigan Canal, projected upwards of twenty years ago, but now on the eve of completion: this Canal is one of the largest class, and extends 95½ or 100 miles to the head of steamboat navigation on the Illinois River: it opens a water communication 1700 miles to the Gulf of Mexico, and completes an inland navigation of 3200 miles to the Gulf of St. Lawrence, by way

of the Lakes, Canada Canals, and St. Lawrence River; and by way of the Lakes, the Erie Canal and Hudson River, to the City of New York, a distance of 3100 miles.

We have also, at Chicago, the projected Galena and Chicago Union Railroad, which is in effect but a continuation of the Buffalo and Mississippi Railroad, extending to Galena. The charter is broad in its terms, and will by the influence of the citizens of Chicago, be soon carried into effect, if operations have not been already arranged. Under a clause in the charter, permitting lateral lines to be built, it is conceded, that that part of our line which lies in Illinois, and which for the sake of simplicity has been considered as a part of the Buffalo and Mississippi Railroad, would be built. The charter to the company, grants the privilege of connecting the road with the Central Railroad in its course to Galena, should they prefer it, to a more direct route. The distance by the direct route would be 160 miles, supposing it no greater than the present stage route. If it diverges to the Central Railroad, passing by way of Dixonville, on Rock River, the distance from Chicago to Galena would be 170 miles—supposing as before, the line to be of the length of the stage road. The charter allows a capital of \$2,000,000.

The appropriations by Government for improving the harbor of Chicago, have been great, and further extensive improvements, I am informed, are contemplated. Some of the early appropriations were as follows: in 1833 \$25,000; in 1834 \$32,801; in 1835 \$32,800; and in 1836 \$68,350 was demanded by the estimates, for completing the work agreeably to a plan proposed at that time, which, if carried out, would have made the cost of the work \$205,561. In 1837, a further appropriation of \$40,000 was granted; and in January, 1838, it was stated, all the appropriations amounted, up to that time, to \$162,601.

I have added the following table of distances, counted from Chicago, to show in comparison the lengths of the various lines of communication projected or in operation, passing to or from the city. It is not to be supposed, that the distances will in every case be found exact; many of them, when no satisfactory information could be found elsewhere, have been ascertained by measurements made on maps, calling 69.45 miles the length of a degree of latitude in the neighborhood of the Lakes. For instance, the distance from Chicago to Buffalo by way of the Lakes, was ascertained in this way, by measuring the route on Mitchell's great map of the United States, published in 1834.

The routes in some instances are made to retrograde for the purpose of completing circuits, and to allow distances to be ascertained in opposite directions at any point in a circuit.

The table next following that of the distances, contains the General Statistics along the Railroad Line, from Chicago to the Ohio Line, and will be referred to as occasion requires.

To be Continued.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**  
Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.  
Hamilton, July 30, 1847. 2m33

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

#### PASCAL IRON WORKS.

#### WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to  
**FULLER & BROWN, Agents.**

No. 139 Greenwich, corner of Cedar street.  
June 1, 1847. 10lf

**PENNSYLVANIA RAILROAD COMPANY**  
Notice to Contractors.—Proposals will be received until FRIDAY, the 26th day of November, at 10 o'clock A. M., at the Town Hall, in the Borough of Lewistown, for the grading and masonry upon about 40 miles of the Pennsylvania Railroad, extending west from section 20 to near Lewistown.

Plans and specifications of the work can be seen at the above named place for five days previous to the time appointed for receiving bids.

Any further information can be had upon application to **WM. B. FOSTER, Jr., Esq.,** Associate Engineer at Harrisburg. **S. V. MERRICK,** 344 President.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
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SHIPPING & COMMISSION AGENTS

**PASSENGERS, SPECIE, GOODS, PARCELS, etc.**  
To all parts of the United States, North and South America, West Indies, India, (overland or otherwise,) Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m **ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address  
**SAM'L KIMBER & CO.,**  
Willow Street Wharf,  
Philadelphia, Pa.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

••• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

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#### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

92v11v

#### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

**R. L. Stevens,** President Camden and Amboy Railroad Company; **Richard Peters,** Superintendent Georgia Railroad, Augusta, Ga.; **G. A. Nicolls,** Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; **W. E. Morris,** President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; **E. B. Dudley,** President W. and R. Railroad Company, Wilmington, N. C.; **Col. James Gadaden,** President S. C. and C. Railroad Company, Charleston, S. C.; **W. C. Walker,** Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; **R. S. Van Rensselaer,** Engineer and Sup't Hartford and New Haven Railroad; **W. R. M'Kee,** Sup't Lexington and Ohio Railroad, Lexington, Ky.; **T. L. Smith,** Sup't New Jersey Railroad Trans. Co.; **J. Elliott,** Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; **J. O. Sterns,** Sup't Elizabethtown and Somerville Railroad; **R. R. Cuyler,** President Central Railroad Company, Savannah, Ga.; **J. D. Gray,** Sup't Macon Railroad, Macon, Ga.; **J. H. Cleveland,** Sup't Southern Railroad, Monroe, Mich.; **M. F. Chittenden,** Sup't M. P. Central Railroad, Detroit, Mich.; **G. B. Fisk,** President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hineckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co Boston. ja45

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

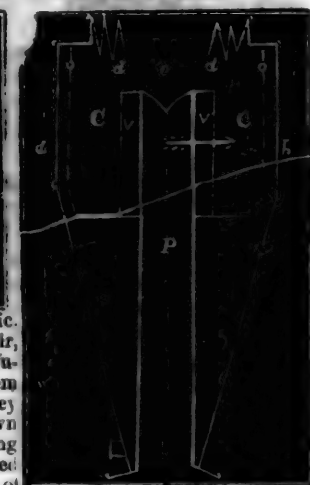
#### Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callen-lers; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size, Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2 1/2 feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 21
13,000 Spikes = 2,250 lbs. at 44 cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 351

## LAP-WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1/4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



road Depots, etc.

West Troy, May 12, 1847.

ANDREW MENEELY.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollow ware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper barrels, by JOHN W. LAWRENCE,

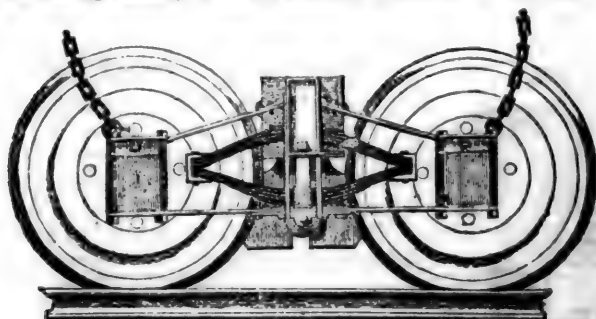
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office.

32 17



**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.		LB.	INCH.	
11	4½	13 5	10	24 -	50	15-16		20
13	3½	9 3	8½	16 -	27	11-16		13½
14	3½	6 11	7½	12 8	17	9-16		10½
15	2½	5 2	6½	9 4	13½	1-2		7½
16	2½	4 3	6	8 8	10½	7-16		7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1v24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLCOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y25

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup' Motive Power

**THE SUBSCRIBERS, AGENTS FOR**

the sale of  
Codorus,  
Glendon,  
Spring M.I. and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L. KIMBER, & CO.,**

59 North Wharves,

Jan. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**  
p45 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MACHINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

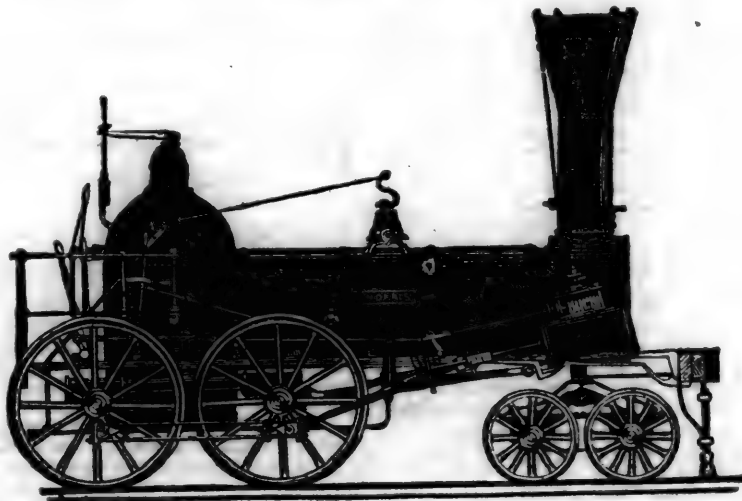
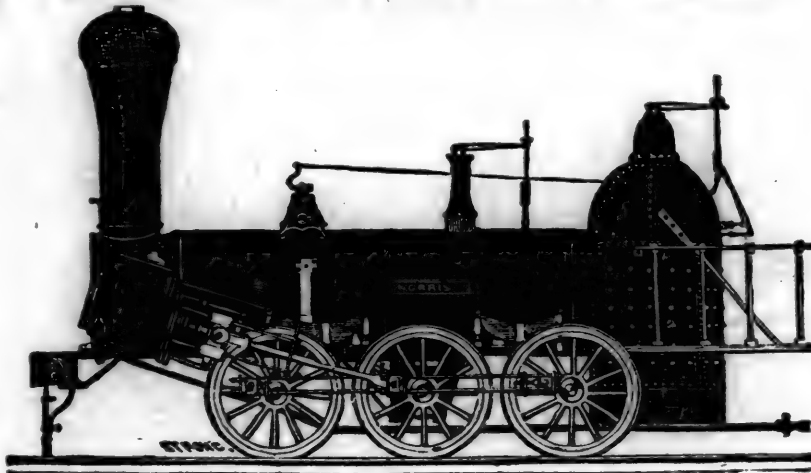
**PETER COOPER 17 Burling Slip.**

New York.

1y10

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder, × 20 inches Stroke.
"	2,	14 " " " × 24 " "
"	3,	14½ " " " × 20 " "
"	4,	12½ " " " × 20 " "
"	5,	11½ " " " × 20 " "
"	6,	10½ " " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Ahaire, }  
Peter Cooper, } New York.  
Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va. }  
J. R. Anderson, Tredegar Iron Works, Richmond, Va. }  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Con. }  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R. }  
New Jersey Malleable Iron Co., Newark N. J. }  
Gardiner, Harrison & Co. Newark, N. J. }  
25,000 to 30,000 made weekly. 35

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY**, a45 President of the Newcastle Manuf. Co.

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia, 25th

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART**,  
12 Platt street, New York.  
**JOB CUTLER**, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28th

**SPRING STEEL FOR LOCOMOTIVES.** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

**JOAN F. WINSLOW, Agent**,  
Albany Iron and Nail Works, 1y

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

**REEVES, BUCK & CO.**,  
Philadelphia.  
**ROBERT NICHOLS**, Agent,  
No. 79 Water St., New York. 26th

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28th

J. BALL &amp; CO.

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m. on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**

**PATERSON RAILROAD** Summer Arrangement. Commencing April 20th, 1847, the cars will leave Paterson at New York at  
8 o'clock a.m. 9½ o'clock a.m.  
11½ o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5½ o'clock p.m.  
On Sunday.  
8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.  
Office 75 Courtlandt St.





**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12½ night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Cincinnati at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, in 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....33 "

From Bellefontaine to Sandusky city by railroad.....103 "

**Fare**—From Cincinnati to Lebanon.....\$1 00  
 " " " Xenia.....1 50  
 " " " Springfield... 2 00  
 " " " Columbus... 4 00  
 " " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Denison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a passage for every \$500 in value over that amount.

47d W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:  
 Leaves Baltimore at.....9 a.m. and 3½ p.m.  
 Arrives at.....9 a.m. and 6½ p.m.  
 Leaves York at.....5 a.m. and 3 p.m.  
 Arrives at.....12½ p.m. and 8 p.m.  
 Leaves York for Columbia at...1½ p.m. and 8 a.m.  
 Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
 " Wrightsville.....2 00  
 " Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg.....\$9  
 Or via Lancaster by railroad.....10  
 Through tickets to Harrisburg or Gettysburg... 3  
 In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at.....5½ p.m.  
 Returning, leaves Owings' Mills at.....7 a.m.  
 D. C. H. BORDLEY, Sup't.  
 Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.  
 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35½

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....190 Miles.  
 Macon to Atlanta—Macon and Western.....101  
 Atlanta to Oothcaloga—Western and Atlantic... 80  
 Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs.	35
Crockery, per cubic foot.....	0 15 "	35
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.  
 On measurement goods..... 13 cts. per cubic ft.  
 On brls. wet (except molasses and oil).....\$1 50 per barrel.  
 On brls. dry (except lime)... 80 cts. per barrel.  
 On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.  
 On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.  
 On molasses and oil.....\$6 00 per hhd.  
 Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50  
 Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00  
 The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr. Agent.

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAIL**

road line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
 Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
 Second class cars..... 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1½ p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Saturdays only at 10 p.m.—being a continuation of the line from New York. 25W



# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville, 92		\$3.50 and	\$3.00
" " Reading, 58		2.25 and	1.90
" " Pottsville, 34		1.40 and	1.20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. No line on Sunday. Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4½ p.m., 7 p.m., 12½ a.m., night mail.

J. R. TRIMBLE,

2d Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—33 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton, 271 miles.	Between Charleston and Dalton, 408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 7
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows.....	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Sup'l. of Transportation.  
Augusta, Ga., July 15, 1847.

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	122½				
and Knoxville & intermediate points.	0 24	1 54	1 10	1 05	0 71
and Chattanooga.					0 76
					0 61
					0 85
					0 90
Between Augusta and Decatur and intermediate points.	40 24	1 70	1 15		
and Knoxville & intermediate points.	40 24	1 70	1 20	1 15	0 80
and Chattanooga.					0 65
					1 10
Between Charleston or Savannah and Decatur and intermediate points.	40 32	2 20	1 40	1 35	1 00
and Knoxville & intermediate points.	40 32	2 20	1 40	1 35	1 05
and Chattanooga.					85

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shoes, Vels, Spades, Scythes, Smiths' Bellows, Baskets, Tubes, Sticks, Brooms and other light articles, per 100 lbs..  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green seed Oil, (in casks or sacks) Pig-iron and Limestone. Per 100 lbs. Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

## ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (See Adv.)

J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (See Adv.)

TROY IRON AND NAIL FACTORY, H. Burden, Agent. (See Adv.)

ROGERS, KETCHUM & GROSVENOR, Paterson, N. J. (See Adv.)

S. VAIL, Speedwell Iron Works, near Morris-town, N. J. (See Adv.)

NORRIS, BROTHERS, Philadelphia Pa. (See Adv.)

FRENCH & BAIRD, Philadelphia. (See Adv.)

NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (See Adv.)

ROSS WINANS, Baltimore, Md.

CYRUS ALGER & Co., South Boston Iron Co.

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JOHN F. STARR, Philadelphia, Pa.

MERRICK & TOWNE, do.

HINCKLEY & DRURY, Boston.

C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

## RATES OF ADVERTISING.

One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
One page per month.....	20 00
One column ".....	8 00
One square ".....	2 50
One page, single insertion.....	8 00
One column ".....	3 00
One square ".....	1 00
Professional notices per annum.....	5 00

# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. HL, No. 47]

SATURDAY, NOVEMBER 20, 1847.

[WHOLE No. 596, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, November 20, 1847.

### To Contractors—Pennsylvania Central Railroad.

It will be seen, on referring to the advertisement of this company, that the amount of work to be let has been increased by several miles since the notice was first given—and that the day of letting has been changed from Thursday the 25th, to Friday the 26th of November. We would, therefore, ask the attention of our readers engaged in that line, to the notice of the company, which we bring forward in this number for their convenience.

**PENNSYLVANIA RAILROAD COMPANY**  
Notice to Contractors.—Proposals will be received until FRIDAY, the 26th day of November, at 10 o'clock A. M., at the Town Hall, in the Borough of Lewistown, for the grading and masonry upon about 40 miles of the Pennsylvania Railroad, extending west from section 20 to near Lewis-town.

Plans and specifications of the work can be seen at the above named place for five days previous to the time appointed for receiving bids.

Any further information can be had upon application to WM. B. FOSTER, Jr., Esq., Associate Engineer at Harrisburg. S. V. MERRICK, 344 President.

### Schuylkill Coal Trade.

SCHUYLKILL NAVIGATION.—Week ending November 11, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	6,299 18
Schuylkill Haven.....	2,312 08
Port Clinton.....	09 00
This week.....	8,612 06
Previously.....	203,283 00
Total.....	211,895 06

### Mount Savage Iron Works.

These extensive iron works were sold, we perceive, at the time appointed, last week, to Messrs. Corning & Winslow of Albany, and Mr. J. M. Forbes of Boston, for \$215,000, upon the judgments of the English bond holders. This establishment, like many other pioneers in this country, commenced operations upon too large a scale at first, requiring an immense outlay of capital to be a long time out of use before returns could be realized, and probably mainly upon a borrowed, instead of a subscribed and paid-up capital.

We are not informed as to the extent of the works at this time, but understand that they have been much enlarged since our visit to them in 1843, the year they commenced making railroad iron. The outlay of capital has been more than twice, and probably three times as much as the amount of this sale, which ought to be, and will be under the management of the present proprietors—who are practical business men—an excellent investment.

We understand that operations will be recommenced at an early day; and we hope to hear that our anticipations of this establishment are yet to be fully realized.

### Central Michigan Railroad.

Receipts for October.

The Central railroad company, says the Detroit Free Press, are doing a large business on the road. The receipts for the month of October were \$60,300 96. Considering the running expenses, length of road, etc., we venture to say there is not in the United States, a road which pays as well to the stockholders.

"When this road is finished through to the lake, it will do a business that will astonish our eastern neighbors, who have until recently imagined this road an unprofitable investment. In the spring of 1846, we were in New York city, and heard an intelligent gentleman express surprise that capitalists could be found willing to invest money in a railroad 'away out west,' and assert that the country could not give support enough to the road to pay interest on the investment. We were appealed to, to know how much the daily or monthly receipts were, and remarked that the road had done a business of \$30,000 per month, and that one year would see it doing a business of \$50,000 per month. This was not believed. Now, we see the road doing a \$60,000 business per month, or \$2,000 per day, and this, too, during lake navigation, when every upper lake boat

is running opposition to the road. 'This is a great country,' and is constantly growing."

### Northern N. H. Railroad.

"We understand," says the Boston Atlas of the 13th, "that this railroad will be opened entirely (with the exception of a short piece from Lebanon village to the Connecticut river, which it is unnecessary to run, until the roads in Vermont are complete) to the public, on Wednesday, the 17th instant. On that day, the stockholders, with invited guests, will pass over the road, leaving Boston in a special train, at 7 A. M., and returning the next day—dining together, by invitation of the citizens of Lebanon and vicinity, on the 17th. Among the invited guests who have consented to be present, we learn, are the Hon. DANIEL WEBSTER, Hon. JOSIAH QUINCY, Jr., Hon. CHARLES H. WARREN, Hon. JOSEPH BELL, and numerous others. We understand a grand gathering is anticipated at Lebanon, to celebrate the completion of this enterprise, connecting by railroad the valleys of the Connecticut and Merrimac—and, for the first time, opening railroad facilities to the Vermont state line.

This line of road now extends from Boston to Lowell, thence up the manufacturing valley of the Merrimac, through Manchester, Nashua, Concord and Franklin, where it leaves the valley, and crosses over the intervening heights, at a moderate grade, to the valleys of the Blackwater and Smith's rivers, and thence follows the Mascota river down to the Connecticut, where intersecting roads connect with it, and extend, in one direction up the valley of the Connecticut and Passumpsic rivers, to Stanstead and Montreal; and, in the other, through Central Vermont, to Burlington, St. John's and Montreal, and to Pittsburg and the Saint Lawrence, at Ogdensburg.

The distance from Boston to Connecticut river, by this line, is 142 miles, which is now to be opened to the public. Of this, the Northern road makes about 69; and the Concord, Nashua and Lowell, and Boston and Lowell, 73 miles.

Forty-four miles of this road have been run, namely, from Concord to Grafton, since Sept. 1st, and the receipts upon it have been large. The gross receipts for freight alone, for last month, exceeded \$4000 per week. The remaining twenty-five miles are now to be added, and the receipts will be greatly increased. The passenger receipts have also been large—equalling, if not exceeding, expectation.



These facts seem fully to justify the standing the stock of this road has always maintained in our share market; and we confidently hope its stockholders may realize all they indicate."

There has been uncommon energy, and good management in the construction of this road; and those who have invested their capital in it will be sure to derive ample returns, as it will unquestionably prove one of the most profitable roads in New England.—[Ed. R. R. J.]

#### Railroad and Canal Stocks.

Reported sales in Boston, New York and Philadelphia, November 6th 1847.

ROAD.	Par val.	Off.	Asked.	Dividend.
Auburn and Rochester.	\$100.	101.	103.	
Boston and Lowell.	500.	603.	608.	
Boston and Maine.	100.	116.	116.	
Boston and Providence.	100.	110.	101.	
Boston and Worcester.	100.	120.	121.	
Charlestown Branch.	100.	120.	121.	
Concord.	50.	65.	65.	
Cheshire.	100.	91.	92.	
Connecticut River.	100.	96.	101.	
Ct. River L. Champ.	100.	90.	90.	
Eastern.	100.	110.	110.	
Eastern, N.H.	100.	110.	110.	
Fall River.	100.	90.	91.	
Fitchburg.	100.	125.	125.	
Long Island.	50.	14.	14.	
Old Colony.	100.	100.	100.	
Nashua and Lowell.	100.	125.	125.	
N. Bedford & Taunton.	100.	125.	125.	
Norwich and Worcester.	100.	37.	37.	
Northern.	100.	102.	102.	
Phila. Wilm. and Balt.	50.	31.	31.	
Portland, Saco & Ports.	100.	100.	100.	
Reading.	50.	27.	27.	
Stonington.	100.	59.	59.	
Taunton Branch.	100.	119.	119.	
Troy and Greenbush.	100.	43.	46.	
Vermont Central.	100.	88.	88.	
Vermont and Mass.	100.	75.	75.	
Western.	100.	113.	113.	
New York, Nov. 6th.				
Eric, new stock.	100.	80.	83.	
do. old stock.	100.	61.	62.	
Mohawk.	100.	68.	68.	
Harlem.	100.	44.	44.	
Reading.	50.	28.	28.	
Utica and Schenectady.	50.	117.	117.	
Syracuse and Utica.	100.	110.	117.	
Auburn and Syracuse.	100.	100.	100.	
Western.	100.	100.	100.	
Long Island.	50.	28.	28.	
Auburn and Rochester.	100.	102.	102.	
N.J. road & Trans. co.	100.	104.	105.	
Paterson.	100.	100.	100.	
Prov. and Stonington.	100.	55.	56.	
Norwich and Worcester.	100.	38.	38.	
N. Haven and Hartford.	100.	100.	101.	
Hudson and Berkshire.	100.	100.	100.	
Housatonic.	100.	37.	37.	
do. new stock.	100.	96.	96.	
Tonawanda.	100.	100.	100.	
Macon.	100.	46.	46.	
Hudson River.	100.	71.	71.	
Philadelphia, Nov. 6.				
Camden and Amboy.	100.	145.	150 div. Jy 6 p.c.	
do. 6 per cts.	100.	100.	100 in. 1 M. & S.	
Phila. and Trenton.	100.	125.	145 div. Ja. 5 p.c.	
Phila. Wilm. and Balt.	50.	28.	30 No div.	
do. loans 6's 1860.	100.	84.	85 in. 1 Jy & D.	
do. 1858.	100.	87.	87 " 1 F & Au.	
Reading.	50.	27.	27 div. in. stk.	
do. 1850.	50.	69.	69 in. 1 Ja & Jy	
Minehill.	100.	73.	73 div. Ja. 8 p.c.	
CANAL STOCKS.				
Schuylkill Navigation.	50.	28.	30 Aug. no div.	
do. 6 per cts.	100.	68.	69 1 Mar. Jy. S.	
do. do. 5's 1855-56.	100.	60.	63 December.	
Lehigh coal and navig.	50.	28.	30 July no div.	
do. loan 6's '44 to '53.	100.	65.	67 in. 1 in coal.	
do. mortgage 6's.	100.	90.	90 } int. semi.	
Chesa. and Dela. canal.	200.	70.	80 no div.	
do. 6's 1856.	100.	78.	79 Jy 4 pr. ct.	
do. Randel loan.	100.	140.	150 in. Ja. & Jy.	

#### Railroad Fares—Comparative Rates in the United States.

The comparative rates of fare on railroads is a subject of some interest, we have therefore prepared the following tabular statement of the principal railroads in the United States, giving their length, through fare, and rates per mile, from which it will be seen that the New York and Erie railroad charges the lowest rate, viz: 1-72 cents per mile—the Harlem next, and then the Long Island railroad. The New England roads all range below three cents, except the New Haven, Hartford and Springfield, which is one-tenth over. And the next lowest, after the New England roads, is the Weldon and Wilmington, N. C., which is a fraction less than 2 1/2 cents—quite too low for a country so thinly populated—though high enough for many of the more northern lines.

From this statement it will be seen that the railroads in the the State of New York, diverging from the city of New York, charge lower rates than any other roads in the country; and we presume the managers of those roads have been influenced by the belief that, where there is a dense, and to a certain extent confined population, the true plan is to put the rates of fare low, and thus induce the masses to use the road. This we are fully convinced is the true policy, and we believe it will ultimately prevail.

NAME.	Commencement & termination.	Length, miles.	Through fare, \$3.00 per mile	Cents.
Eastern railroad,	Boston to Portland,	105	3.00	2.85
Boston and Maine,	" " "	110	3.00	2.72
" Lowell,	" " "	26	0.65	2.5
" Worcester,	" " "	44	1.25	2.8
" Providence,	" " "	42	1.25	2.97
Fitchburg,	" " "	71	1.75	2.46
Fall River,	" " "	53	1.35	2.54
Old Colony,	" " "	37	1.00	2.66
Western,	Worcester to Albany,	156	3.75	2.27
Nashua and Lowell,	Lowell and Nashua,	15	0.40	2.66
Concord,	Nashua to Concord,	34	0.80	2.35
Norwich and Worcester,	" " "	60	1.50	2.5
New Haven and Springfield,	" " "	62	1.87	3.00
Bridgeport,	" " "	98	2.00	2.04
New York and Harlem,	" " "	53	1.00	1.88
New York and Erie,	" " "	87	1.50	1.72
Long Island,	" " "	95	2.00	2.1
Camden and Amboy,	New York to Philadelphia,	90	3.00	3.33
New York and New Brunswick,	" " "	33	0.75	2.27
" Philadelphia,	" " "	88	4.00	4.54
Reading,	Philadelphia and Pottsville,	92	3.00	3.26
Philadelphia and Baltimore,	" " "	97	3.00	3.01
Westchester and Columbia,	" " "	32	0.75	2.34
Philadelphia, Lancaster and Harrisburg,	" " "	107	4.00	3.73
" Germantown and Norristown,	" " "	17	0.40	2.38
Harrisburg and Chambersburg,	" " "	56	2.12	3.78
Baltimore and Ohio,	Baltimore to Cumberland,	179	7.00	3.91
" Washington,	" " "	40	1.60	4.00
" Susquehanna,	" " "	71	2.13	3.00
Washington and Richmond,	(including Portage)	133	5.50	4.13
Louis,	Gordonville,	50	3.25	6.5
Richmond to Petersburg,	" " "	22	1.00	4.34
Winchester and Potomac,	" " "	32	2.00	6.25
Petersburg and Roanoke, to Weldon,	Weldon,	63	3.00	4.76
Weldon to Wilmington,	" " "	161	4.00	3.48
Wilmington to Charleston by steamboat,	" " "	"	4.00	"
Gaston and Raleigh,	" " "	87	4.00	1.46
South Carolina,	Charleston to Augusta,	136	6.75	4.96
Columbia,	Branchville to Columbia,	68	3.38	4.97
Georgia,	Augusta to Atlanta,	171	7.00	4.09
Athens branch,	" " "	39	1.95	5.00
Western and Atlantic,	Dalton,	100	5.00	5.00
Central,	Savannah to Macon,	191	7.00	3.65
Macon and Western,	Atlanta,	101	4.00	3.96
Montgomery and West Point,	" " "	60	3.00	5.00
Vicksburg and Jackson,	" " "	47	3.00	6.38
Albany and Schenectady,	" " "	17	0.50	2.94
Greenbush and Troy,	" " "	6	0.20	3.33
Troy and Schenectady,	" " "	201	0.50	3.43
Utica and Schenectady,	" " "	78	3.00	3.84
Utica and Syracuse,	" " "	53	2.00	3.77
Syracuse and Auburn,	" " "	26	1.00	3.84
Auburn and Rochester,	" " "	77	3.00	3.89
Rochester and Attica,	" " "	44	1.56	3.54
Attica and Buffalo,	" " "	31	0.94	2.98
Buffalo and Niagara Falls,	" " "	22	0.75	3.4
Lockport and Niagara Falls,	" " "	24	0.75	3.12
Michigan Central,	Detroit to Kalamazoo,	146	4.40	3.00
Detroit and Pontiac,	" " "	25	1.00	4.00
Erie and Kalamazoo,	Toledo to Adrian,	33	1.00	3.00
Southern Michigan,	Monroe to Hillsdale,	70	2.00	2.85
Mad River,	Sandusky to Bellefontaine,	102	3.25	3.18
Little Miami,	Cincinnati to Springfield,	84	2.00	2.38
Lexington and Ohio,	" " "	98	1.25	4.46
Mansfield and Sandusky,	" " "	56	1.50	2.67
Madison and Indianapolis,	" " "	86	3.00	3.48

#### Chesapeake and Ohio Canal.

The Williamsport (Md.) Times of Friday says:—"We learn from reliable sources that the Chesapeake and Ohio canal will be in good navigable order by the latter part of next week, and that by that time a large and active transportation of flour and other produce will be commenced."

### Expenses of Railway Construction in England.

We should have had few railways in this country at such a cost.

#### Parliamentary Expenses.

	Per mile
London and Birmingham and London and South Western.....	£650
Great Western and Manchester and Leeds..	1,000
London and Brighton.....	3,000

#### Low Charges—Engineering—Direction.

London and South-Western.....	900
Grand Junction.....	1,200
Birmingham.....	1,500
Manchester and Leeds.....	1,600
Brighton.....	1,800
Great Western.....	2,500

#### Land and Compensation.

Newcastle and Carlisle.....	2,200
Grand Junction.....	3,000
South-Western.....	4,000
Manchester and Leeds.....	6,150
Birmingham and Great Western.....	6,300
Brighton.....	8,000

#### Railway Works and Stations.

Newcastle and Carlisle.....	12,000
Grand Junction.....	15,000
South-Western.....	18,450
Birmingham.....	22,280
Great Western.....	40,000
Manchester and Leeds.....	41,400

#### Carrying Establishment.

Newcastle and Carlisle.....	1,300
Grand Junction.....	2,000
South-Western.....	2,350
Birmingham and Brighton.....	3,000
Manchester and Leeds.....	3,600
Great Western.....	4,800

In the case of the continental railways, the first three classes of expenses have not been so great. The "law charges," etc., on the Belgian, were £430 a mile; on the Paris and Rouen, £800. The "land and compensation," Paris and Rouen, £2300; Belgian, £2750. In "railway works and stations," Belgian, £10,600 per mile; Paris and Rouen, £17,000. In the "carrying establishments," Belgian, £2450; and Paris and Rouen, £3400 per mile.—*The Rail, its Origin and Prospects.*

#### Great Western Canada Railroad.

On Saturday, the 23d of October, this company broke ground, with appropriate ceremony, at London. There appears to have been much enthusiasm manifested by the people of that district—and the day was made a day of rejoicing and amusement.

The charter for this road was obtained about ten years ago. The government appropriated £200,000 in aid of the work, but from the general depression in the business operations of 1838 and 1839, with other difficulties of a local character, prevented the commencement of the work. It was considered a work of too great importance, however, to remain long neglected, and another effort was made in 1844 and 1845 to get the stock taken in England, which was thought for a time to be entirely successful; but, to use the language of the president of the company, Sir Allan McNab, "scarcely was the arrangement effected when the railroad panic broke out in England, and the stockholders were in consequence unable to fulfill their engagements. They had, however, he was happy to say, £250,000 of stock held in England, by good constituents—men who are able and willing to pay, and who have paid five per cent. or £12,500 on their shares." Yet, notwithstanding all the difficulties and the delays which have taken place, he said, "in conclusion, he would assure them that, come what may, it was a positive certainty that the road would be built, and that, too, with very little delay. No government could stand which

would not support this railway, and he had no hesitation in saying *they must support it!*"

After years of delay and years of effort, and of preliminary surveys, the surveys for a definite location were commenced early last spring, under the direction of CHARLES B. STUART, Esq., one of the most persevering and efficient engineers of the United States, aided by several other young men of the profession from the States, and pursued with a vigor—and we think we may say a success, rarely equaled, as they examined and "carefully surveyed nearly fifteen hundred miles" of line—and located definitely, including the branch to Sarnia, 277½ miles, of which 264 miles are straight lines—as may be seen in Mr. Stuart's report, published, with a very valuable map, showing the line and all its important connections, both east and west, as well as in Canada, in the Journal of September 18th, or No. 38.—Since the surveys were completed, one hundred and ninety-two miles, extending from Niagara river to Hamilton, thence to London and thence to Port Sarnia on the St. Clair river, have been put under contract; considerably, as we understand, within the estimate of the engineer; and now we perceive that the work has been formally commenced, and under auspices, we trust, which will ensure its rapid construction, as we are quite sure that it will prove to be one of the best investments of capital in the country.

In the course of the proceedings, Geo. S. Tiffany, Esq., chairman of the directors, addressed the meeting, explanatory of the great and peculiar advantages of this road, not only as a local work, but as the great and direct connecting link between the roads of Michigan, Indiana and Illinois to the Mississippi and Ohio rivers, and those of New York and New England. The remarks of Mr. Tiffany are so appropriate that we give the following extracts from them, as published in the Toronto Globe of 27th October, and refer our readers to the map accompanying Mr. Stuart's report in No. 38 of the Journal, from which they will better understand the subject, and appreciate the importance of this line.

Mr. Tiffany said "he was called on to speak of the tendency which the Great Western road would have in promoting friendly relations between this province and the United States, and he believed there was no one present who did not feel the vast importance to both countries, to cultivate and maintain mutual good will. Through the means of the great and increasing commercial interest between this province and the United States—which he hoped would soon open out our trade in all agricultural products, through the facilities which our canals and railroads will afford—we feel no doubt that both interest and the inclination of the people of both countries, will be to strengthen the bond of good feeling, and will effectually prevent the growth of those prejudices and animosities which so often have arisen among people living under different governments. The Great Western was so located as not only to perform the office of forwarding the commercial communications between this province and the United States, but it is calculated by its position to afford the best route of communication between the eastern and western States. It is the necessary intermediate and connecting link between the chain of railroad from Boston to Niagara river, and the railroad from Detroit to Lake Michigan, to be continued thence round the head of the lake to Chicago and the Mississippi river. A glance at the geographical position of this province and the adjoining States will convince any one of the advantages possessed by the Great Western, in commanding a large portion of the business and travelling between those countries."

He then alluded to the astonishing growth and extent of the business now done on Lake Erie.

"Viewing the road, therefore, as so necessary to the people of the United States, he thought it would

be productive of happy effects in showing to us their good will. This had indeed been manifested by the Americans having taken largely in the capital stock of the company. He then alluded to the vast benefits the road would confer on the province, by showing that its route had been wanted from the Niagara to the Detroit river, in nearly a direct line through the oldest and best settled portion of the province, passing through or near all its important towns, thus not disturbing the business of the country, but adding greatly to its facilities, and increasing the size of the towns, and adding much to the value of real estate. Main roads now radiate from the town of London, penetrating in all directions the rich agricultural country which surrounds it. It will soon become the chief mart for the sale of produce, and the depot of merchandise for the supply of the interior; it will soon grow up into a large city.

"The value of the road to the farmer would be incalculable. By it he will be able to avail himself of the best markets throughout the year, not only for the sale of wheat—the great staple—but for the innumerable other articles of agricultural produce which now, for the want of cheap and rapid means of transportation, are comparatively valueless to him. He drew their attention to the events of the past year when, through the want of such a line of road wheat and flour was locked up for a long time at a great loss to the owners, and that at the present moment wheat brought 1s. 3d. per bushel more at Buffalo than at Hamilton. The construction of the Great Western will correct this evil, and place the Canadian farmers on an equal footing with the farmers of western New York. These were strong motives why every man should, according to his ability, aid in building the road, but whatever the public may do in this respect, they might rely on the directors doing their duty, and he expressed his perfect confidence that the road would soon be completed. He then said that the directors had never regarded this road solely as a western measure, but that they had, as long ago as 1838, in their published report, recommended the extension of it to Montreal and Quebec, and from thence to Halifax and St. Andrews. He regretted that government had not seen fit to take up this whole great project, and construct it at the public cost, with the view of promoting the prosperity of the country, and apply its surplus profits hereafter to the support of the general expenses of the government, and thus relieve the people from taxation, or in the construction of other lines to intersect the main trunk.

"He expressed his belief founded on analogy, that the Great Western would pay dividends of 15 per cent. the first year after its completion, and that the line from Hamilton to Quebec would pay 6 per cent. In furtherance of this plan, the directors had procured a line from Hamilton to Montreal, to be chartered the session before last.

"In England and the United States the people had felt the want of a general system of railroads.

"Their roads had been constructed without such a plan by piece-meal, and to meet mere local wants.

"In this country we had, as yet, no railroads; if we except that between La Prairie and St. John's.—For more than 17 years they have been constructing to a great extent in other countries, while we have looked on at a distance; but we have the advantage of the experience of those to guide us, and if we will be but taught by such experience, we may in the end have no reason to regret the delay of making railroads here. We can hardly expect that private capital and enterprise can be found, sufficient to carry out so large a system for many years, and therefore he hoped that while there was yet time, government would, with an enlightened and bold policy, take the matter up.

"He concluded by expressing his gratified surprise at the immense, and highly respectable assemblage of the people on that occasion, and could not but regard it as a hopeful indication of the awakened and deep interest the people feel in the construction of the road."

Charles B. Stuart, Esq., chief engineer of the company, was then introduced to the audience, and he proceeded to give a brief sketch of the progress of the work, and the favorable adaptation of the country for the construction of a railroad. He dwelt at some length, likewise, on "the great advan-



tage which this line would be to Canada, and showed the certainty of a large portion of the passenger and freight transport trade of the great western territories being diverted through it. Mr. Stuart wound up by an energetic appeal to the people of Canada to put their shoulders manfully to the wheel, and the work will soon be carried through."

A public dinner was given by the citizens of London, at the Western Hotel, at which about 120 gentlemen were seated. After toasting her most gracious Majesty—Prince Albert and the royal family—and the Governor General of Canada, which were of course drank with all the honors and many cheers—"the president then rose and said in this great improvement which they sought to effect in Canada, several enterprising Americans were associated;—many of the stockholders and some of the guests of the evening were natives of the United States; the proposed railroad, it was expected, would be largely supported by our neighbors; the commercial affinity of Canada and the States was every day becoming closer—and he thought all present would feel on such an occasion, it was a proper compliment to their friends from the other side, to do honor to their chief magistrate. He gave the *President of the United States*. The toast was drank with all the honors.

"Mr. Stuart replied. He said he had almost forgotten that he was a native of the United States.—He had been but six months in the country, but he had been treated like one at home, and he had felt as if at home, and why should it not be so? They were all living for the same purpose—all were striving for the same end. It was the pride of the United States to follow the example of old England. (cheers.) Where did they first learn the art of making railroads? we were indebted to England for it—there the first iron road was built. And were they not on that very occasion to unite the two countries more closely together, to band them together by bands of iron? The people of the United States were desirous of cultivating an enduring social friendship with the people of Canada—and no part of the country more so than the Empire State of New York.—An American in Canada could hardly realize, now, that the countries were separated—but when the iron bridge spans the mighty Niagara, and we sweep in crowds over your railroad, we will forget that we are foreigners. And when Canadians shall visit our side of the lines we shall hold out to them the right hand of fellowship—and nowhere will they receive a heartier welcome than in the Empire State. I thank you, Mr. President and gentlemen, conceeded Mr. Stuart, for the toast you have received so cordially, and believe me that, when you come to our side of the lines, we will give as hearty cheers for your Queen as you have give for our President. (loud cheers.)"

There were many good things said and songs sung, but nothing perhaps occurred which excited more amusement than the following short reply of the venerable Col. TALBOT, when his health was drank.

The chairman said—after a warm eulogy upon the character of that gentleman—that, "in Colonel Talbot's presence he would refrain from saying more, and he knew that eulogy was not required to call forth a hearty response to 'the health of the Hon. Thomas Talbot.'"

"Loud and long continued cheering greeted this toast, and Mr. Coote Stanley sang, in good style—'The Fine Old English Gentleman.'"

"Col. Talbot then rose and said, I thank you gentlemen most gratefully for the honor you have done

me this day. I have witnessed a scene which I never hoped to behold in this settlement—it is an event never to be forgotten. I believe I am the oldest inhabitant. I slept on this spot 55 years ago, when my best friend was a porcupine. We were often excessively hungry in those days, but we all used to declare that we never were so hungry as the night we ate the porcupine. (Cheers and laughter.) What a change has occurred since then! Now I see different beings around me—no porcupine—no bristles—but in their place a company of half-civilized gentlemen. (Laughter and cheers.) I wish you gentlemen, all prosperity, and when I am laid under the sod, may you go on progressing under the blessing of God, (cheers.)"

To a complimentary toast to the engineers, Mr. Stuart acknowledged his obligations to Mr. Spaulding and his other assistants, to which Mr. Spaulding briefly replied, and gave—"The Ladies," which was enthusiastically received; and the party immediately afterwards broke up.

The demonstration from first to last, went off admirably; and we trust it is a happy presage of the success awaiting the enterprise.

#### Gauge, or Width of Track for Railroads.

There has been much written and said upon the width of track for railroads. The early views of engineers, and others, in relation to the width of track for railroads, were probably no nearer correct under the present state of things, than were those in relation to the weight of rail and weight of engine; yet, unfortunately, the width of track cannot be as easily varied as the weight of engine, or rail, and therefore it is that a deviation from the ordinary rule, or practice of a country, or particular section of country, usually causes a warm contest between the advocates of the different gauges. Such has been the result in England, more especially, since the contest between the Great Western, with Mr. Brunel—who likes to lead—at its head, and the other principal lines in the kingdom.

Of the superiority of a track wider than 4 feet 8½ inches, we have not a doubt; but whether it should be 5 feet, 5 feet 6 inches, 6 feet, or seven feet—the width of the "Great Western"—we do not presume to decide; but that it would have been much better in the end, if a wider gauge had been at first adopted, we think there cannot be a doubt. It has however been, by many able men, deemed doubtful whether true policy, now, after so many roads have been built, and so large an expenditure has been made, dictates a change of gauge. There are circumstances, we are quite satisfied, where a different gauge may be adopted by a company; and perhaps there is no line where it can be, with more propriety adopted than from Portland to Montreal, for the reason that it passes through a country, and opens a communication, where the freight to be transported is likely to be of a bulky character; and also because it is to be the pioneer road for the entire region of country lying east and northward of it; and because it will be as easy for all roads constructed beyond it, which may be in any way connected with it, to adopt its gauge as any other.

Such appears to have been the opinion of the engineer, Mr. A. C. Morton, who has put his views at length in the shape of a report, to the directors of the St. Lawrence and Atlantic, or the Canada portion of the road, which we propose to give in part or in whole to our readers, as we may find room for it.

From this report, as well as from other sources, it will be seen that we now have a variety of gauges in this country—though principally of 4 feet 8½ in., or 4 feet 9 in. The roads in New Jersey, Ohio and

Mississippi, Mr. Morton says, are 4 feet 10 inches. The roads in South Carolina, Georgia and Florida, are 5 feet. The Louisiana roads are 5 feet 6 inches. While the New York and Erie road alone in this country is 6 feet. It is not therefore breaking a rule to deviate from what is, by many supposed to be, a uniform custom, and under the circumstances, where it cannot throw serious obstructions in the way of business, nor interfere with roads now in use, we are quite content with the decision of those interested in the Portland and Montreal road, and commend the arguments of Mr. Morton to the attention of the readers of the Journal, and the profession generally.

#### Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Morton, Esq., Chief Engineer.

ENGINEER DEPARTMENT, MONTREAL, }  
September 20th, 1847. }

HON. A. N. MORIN, President  
St. Lawrence and Atlantic Railroad Co.:

SIR: The Act to amend the Act incorporating the St. Lawrence and Atlantic railroad company, passed at the late session of the provincial parliament, 10th and 11th Victoria, Cap. 65, provides,

"That the gauge upon which the said rail shall be constructed, and which shall be used in the said railway, shall be four feet eight and one-half inches, unless, within six calendar months, the governor of this province in council, determine upon any different gauge, and that, upon communication to the said company of any order in council, establishing any different gauge, the gauge so established shall be the one used in the said road as if the same had been established in and by this act."

The charter of your road contemplates a connection at the boundary line with another road belonging to an American corporation, the two forming a perfect line to the Atlantic coast.

It therefore became necessary in the early stage of these roads that the subject of the gauge should be jointly considered by the two corporations.

After a careful consideration of the question by a convention of directors from each corporation, articles of agreement were entered into relative to the general plan of construction, etc., dated April 17th, 1846, in which among other things it is provided (article 5th) "that the gauge shall be that of 5 feet 6 inches in the clear between the rails."

As this gauge differs from that embraced in the recent act of parliament, it is proper that I should state the reasons which influenced me in recommending its adoption for your road.

The question of the best gauge for railways has, within a few years, been much discussed, and it is a subject upon which much difference of opinion prevails. The agitation of this question did not, however, take place until railway improvements were far advanced, involving a vast expenditure of money; and it is not surprising that, under these circumstances, there should be a difference of opinion as to the propriety and expediency of a change.

In an abstract view of the subject, I believe engineers generally consider that a

wider gauge than the prevailing one is desirable, to meet the requirements of the present advanced state of railway improvement.

With our present knowledge of railways, were a new system to be commenced free from interest and the prejudices of engineers, committed to a particular width, there can be little doubt but that a different gauge from that of four feet eight and a half inches would be adopted.

This gauge had its origin from no scientific investigation of the subject but from mere accident, it having been in use at a very early date on tram roads, upon which the ordinary wagons of the country ran.

From these it was copied by several coal roads, and afterwards for the Stockton and Darlington, and Liverpool and Manchester railways, which were the first constructed for passengers and general traffic.

This gauge having been adopted for the first important road in England, was copied or extended by branches or other lines without any investigation of its merits till several hundred miles were built.

In the United States the same gauge was usually adopted, and not without very good reason, for it was supposed that the experience already obtained in England, from having first introduced railways generally on this gauge, was sufficient evidence of its possessing all the requisite advantages.

As the first locomotive engines used in the United States were imported from England, it was doubtless considered advisable, both as regards economy and convenience, that they should conform to those already in use in that country, and this may have been a strong reason for adhering to the same gauge.

The Great Western road in England was, I believe, the first constructed on what is now termed the broad gauge, although an increased width of track had previously been proposed in the United States, and in a few instances adopted.

The South Carolina road, which is 136 miles in length, and was completed in 1833, has a gauge of five feet.

The propriety of an increased width of track was laid before two or three railroad companies, in the State of New York in 1834 and 1836, one of which adopted a width of track of six feet for its road, which extends from New York to lake Erie, a distance of 450 miles.\*

There are 63 miles of this road in operation, and the construction of a large portion of the remaining distance is rapidly progressing.

Nearly all the remaining roads in New York have a gauge of four feet nine inches.

Those of New Jersey, Ohio and Mississippi are four feet ten inches. The New Orleans and Nashville road, Louisiana, is five feet six inches, and all the roads of South Carolina, Georgia and Florida, of which

there are nearly 900 miles now in operation, have a width of track of five feet.

In nearly all the remaining States, the gauge of four feet eight and a half inches has been adopted.

In considering the question of gauge for your road, it is important not only to take into view the comparative merits of various widths of track, but the ultimate design of the road, the nature of the country through which it passes, and its connection with other lines—also the state of railway improvements in the provinces, the probable effect their construction will have on the business of the canals, and finally, the position of Canada, commercially, and the benefits that will flow from the adoption of a judicious and well matured system of railways.

The primary object of your road is to open the shortest and most direct communication between Montreal and the seaboard, affording facilities at all seasons of the year for the transmission of merchandize, passengers, and the public mails, commensurate with the wants of a great commercial public.

A glance at a map showing the Atlantic coast, the St. Lawrence valley and the upper lakes, will impress the most casual observer with the important position of your road.

In connection with the Portland road, it forms a continuous line from the St. Lawrence at Montreal to the Atlantic at Portland, which is from 70 to 100 miles shorter than any other line of improvement between these points, connecting on the one hand with a long line of inland navigation including a vast and fertile territory, and terminating on the other at one of the best harbors on the Atlantic coast.

These are the features in your road which give it a commanding position, and indicate that, ultimately, it must constitute the great thoroughfare and outlet for an immense trade. With a reasonable degree of assurance that these results will be realized, it appeared to me the part of wisdom that you should in determining on the plan of the road avail yourselves of all the improvements which long experience in this species of intercommunication may have suggested.

To keep pace with the increasing facilities of transportation, to meet the demands of a rapidly increasing trade, to compete successfully with rival lines, whose object is to divert trade from the St. Lawrence valley, and the public works of Canada, seemed sufficient reasons for giving to your road an enlarged capacity.

In northern climates it has been found extremely difficult to keep railways in a proper state of adjustment, and various expedients have been resorted to with a view more effectually to guard against the effects of frost.

Efforts to overcome this difficulty, have to a limited extent been successful, but it is only by constant attention and great cost that railways are retained in that state of repair required by a proper regard to safety and economy of transportation. Any inequalities in the surface of the rails from frost or other causes, communicates to the cars an irregular rocking motion which adds to the resistance

to be overcome and the inconvenience of passengers.

The increase of base afforded by a wider track with wheels of given size, lowers the centre of gravity and allows greater ease and steadiness of motion in the cars, and consequently less wear and tear both to the machinery and the road and less danger of accidents.

With a view to the better accommodation of passengers, many railway companies in the United States have ordered cars of increased dimensions, some of which are 9½ feet wide, yet this increase is strongly opposed by car builders and is well known to operate unfavorably from the too great overhanging weight.

On long lines it is desirable to have large and well ventilated cars which will permit each passenger to have a separate seat with arms upon which he may lean, and room sufficient to change his position without incommoding or annoying the person in the adjoining seat; comfortable saloons should be provided for ladies and children, and the passage ways through the cars should be sufficiently wide to permit passengers to walk about and pass each other conveniently. With the narrow gauge these objects cannot be accomplished; but with the width of track adopted for your road, these improvements may be readily made, and still the motion of the cars with this increased width will be easier than that of smaller cars on narrow gauge roads.

Your road will furnish a cheap and expeditious conveyance for emigrants, by which they will be enabled to reach their place of destination at the most favorable period for securing a crop the first season of their arrival in the country.

The transportation of emigrants will undoubtedly constitute an important branch of business, and for the second class cars the additional width allowed by a wider gauge, will permit an increase in the number of seats and a most advantageous arrangement for a larger number of passengers in a given number of cars. The weight of car per passenger carried would in this case be less than on narrow gauge roads. For first class passenger cars it is preferable to give superior accommodations, which increases the number of passengers and the revenue of the road, even though the weight of car per passenger should be slightly increased.

This however with your gauge remains a matter of choice; for you may have the same weight of car with the inferior accommodations of the narrow gauge or by a very small increase of weight, furnish the most superior accommodation.

This is not a question whether the company shall construct narrow and inconvenient cars because they may cost or weigh less, but it is a question in which the public are interested and have a right to claim the best accommodations which the gauge will permit. Besides it is well known that passengers are attracted in greater numbers to the road which gives the greatest accommodations; and therefore it becomes directly the interests of the company to offer every in-

\* E. F. Johnson, Esq. civil engineer, as early as 1834, communicated his views to the Auburn and Syracuse railroad company, as to the propriety of an increased width of track, and subsequently in able reports to the New York and Erie, and the New York and Albany railroad companies, advocating the wide gauge.



ducement which will secure the patronage of the public.

On the Great Western railway in England which has a gauge of 7 feet, the weight of car per passenger carried, is no greater than the average of the London and Birmingham, Grand Junction, Dover and Brighton, South Western and Midland company, but affords far superior accommodation to passengers.

On the New York and Erie railway, in the State of New York, which has a gauge of 6 feet, the weight of car per passenger carried is 85 pounds less than on the narrow gauge roads there, and affords equal room for each passenger.

The nature of the business to be done on your railroad, will undoubtedly nearly resemble that of roads in the northern part of the United States; and it is supposed that 1st class passenger and merchandize cars of a similar character to those in use there, will be found more appropriate for your road than cars of any other description. In reference to freight cars, it is believed that the wider gauge of 5½ feet will be found to afford superior advantage to those of the narrow track.

A greater width of car may be adopted which is better calculated for carrying all kinds of freight: much of which will be bulky.

The articles which would be transported to better advantage on large cars, are various kinds of light machinery, furniture, charcoal, hay, cattle, horses, calves, hogs, sheep, cotton, hops, wool, etc.

From the bulky character of such freight it will doubtless often be necessary to limit the load below the tonnage which should be carried by each car, for want of space, and in such case a loss of power is sustained;—for the number of cars in the train will be increased and their weight will compose a larger part of the gross load. With larger cars a less length of train would be required for the same tonnage, thereby lessening the resistance to be overcome from side winds, which increases with the length of the trains.

The resistance of a train in passing curved portions of a road, is also considerably lessened by diminishing its length.

Increased width of cars gives greater advantage in hauling a given load under the same circumstances; for it is well known that the power is applied more advantageously to short trains than to long ones, and by diminishing the number of cars the weight of useful tonnage carried is greater in proportion to the gross load.

Freight cars need not necessarily be any heavier on your gauge than they are now on most narrow gauge roads; but if we avail ourselves of the greater capacity, which the 5 1/2 feet track allows, the weight of car per ton of freight which may be carried, will be less than on the narrow gauge.

With a gauge of 4 feet 8 1/2 inches, it is found difficult to arrange the working parts of an engine, and to give the requisite dimensions to the fire box and boiler, without raising too much the centre of gravity.

Nearly all the engine builders in the United States, with whom I have consulted, ad-

mit that they labor under great difficulty for the want of more room, and that a gauge of 5 to 5 1/2 feet will allow them sufficient space to overcome all these difficulties.

It is owing to this inconvenience in arranging the parts and in making the repairs, that many builders have adopted outside cylinders for some of their engines.

These it is generally admitted are objectionable on many accounts, and are likely soon to get out of use, particularly for engines designed for high speed.

They are more usually adopted for freight engines, on account of the less speed they are required to run, but for these they are nearly abandoned by the principal builders of the eastern States.

It is however often the case that in order to make up for lost time, freight engines are necessarily run with great velocity, in which case all the objections to outside cylinders operate with full force. With this arrangement of the cylinders, the power is applied alternately to each side of the engine, which causes it to sway from side to side, and produces that galloping and oscillatory motion, so injurious to the machine and the road, and so productive of accidents. It is well known that by the application of the power nearer the centre of the machine, and the more favorable position of the working parts with inside cylinders, the above difficulties are avoided.

The greater space afforded by a 5 1/2 feet gauge permits the most favorable disposition of these parts, and all the benefits resulting from their central position are fully realized.

Another reason assigned for the adoption of outside cylinders, was the frequent breaking of crank axles; but it is only necessary to manufacture these with proper care and proportion, to insure exemption from the difficulty. This has already been done and they are now deemed by many builders, as safe as the straight axle.

As before remarked, it will be found that inequalities and irregularities in the track are unavoidable, where frost operates with the force that it does here, and therefore it becomes important to lessen if practicable their evil effects upon the machinery and the road.

By increasing the width of track, the motion of the engine is easier and more steady, its various parts working more freely and with less danger of injury from sudden changes. It is desirable to have as large driving wheels as practicable without raising too much the centre of gravity of the engine. By enlarging the driving wheels, the same speed may be maintained with less velocity of the piston and less friction; and as most of the weight is on these wheels, their increased size lessens the shock which the engine receives.

Large wheels permit a more efficient and economical application of the steam, lessen the wear and tear of the working parts, and with an increased base give greater steadiness and security. Both the lateral and vertical movements of the engine being easier, its action on the road will be less injurious, and there will be less danger of its leaving the track.

The more important advantages, however, resulting to the engine from a wider track, is the enlarged size of the boiler and fire box which this increased space allows.

As the power of the engine depends upon the extent of evaporating surface, all improvements which have reference to an increase of power have been directed to an enlargement of these parts.

The space, however on the narrow gauge being limited, the only means left to increase the heating surface is to lengthen the boiler and fire box. But there is a strong objection to the increased length of boiler on account of the loss of power required in creating sufficient draft through their long tubes.

To be Continued.

One of the earliest of Mr. Stephenson's locomotive engines is now employed conveying coals, on the Darlington Railway, at a less cost per ton than any other railway in England.

#### Comparative Cost of Engines and Cars made in the Shops of the Company or by Contract.

This is an important question for railway companies to decide. It is a question upon which there is a diversity of opinion. In England we believe that the companies have generally purchased them from the manufacturers—so have they mainly in this country, though many companies have, at different times, attempted to construct their own machinery, and some continue to do it in whole, and others in part; while others again have abandoned the manufacture, and only do their own repairs.

The Great Western company, it appears from the following article, are preparing, on a large scale, to make their own machinery.

They go very far beyond us, in England, in the size of some of their driving wheels. Six feet, we believe, is as far as any of our manufacturers have gone, while eight feet are not uncommon on some of the English roads.

The London Morning Herald says:

It is stated by the locomotive superintendent of the Great Western line, Mr. Daniel Gooch, an eminently practical man, and regularly educated in the locomotive workshop itself, that the company can construct a locomotive and tender of the very best materials and workmanship, without stint as to the price of steel and iron, or pay for first rate men, for £400 less than they can be procured from the manufacturer. Four hundred locomotives will, it is stated, be required to work the traffic over the broad-gauge lines in the course of construction. During the last twenty months there have been manufactured at Swindon 24 engines, with tenders, and a considerable number are now in a very forward state of construction. The completion of the works will, we are informed, enable the company to put upon the line annually 60 engines with tenders, and about 250 trucks with axles and wheels. The saving to be effected in the make of each of the trucks is set down at £20. If the calculations respecting the cost of manufacturing engines, tenders, and trucks be correct, the estimated saving over a series of years is not a very difficult arithmetical problem.

The entire cost of the works at Swindon, including the outlay for the erection of the residences for the additional number of work-

men to be employed there on the completion of the buildings in progress, will, as we are officially informed, amount to about \$220,000. The station, workshop, men's residences, cricket-ground, and the church—a very beautiful structure—occupy about 14 acres of land, which have been purchased at £200 per acre, and it is stated that the cost of the additional shops for the present exclusive manufacture of locomotives, tenders, and trucks, but which, as we have observed, will hereafter be principally devoted to the repairs of locomotive and truck stock, as well as, of course, for the manufacture of the current want of locomotive stock, will amount to about £100,000. If the company turn out locomotives, tenders, and trucks at the estimated capability of the new workshops, viz., 60 locomotives, with their tenders, and 250 trucks, per annum, with the saving contemplated, it is clear that the anticipatory erection of the additional works will realise to the Great Western people a saving of about 29,000*l.* per annum. This calculation, however, supposes that an outlay of about 25,000*l.* required for the erection of the residences of the additional number of men wanted will return 8 per cent. in the shape of rent. We are, after having inspected the houses already built at Swindon by the company, and being put in possession of a list of the rents charged, inclined to doubt whether the return upon the sum will yield more than 4 or 4½ per cent.; but as these houses will be required for the additional workpeople that must be employed in repairs, when all the lines in connection with the broad-gauge system are open to the public, we can deduct as a loss to the company only the difference between the 4 or 4½ per cent. and the 8 per cent. dividend paid to the proprietors, or the difference between the 4 or 4½ per cent. and the rate of interest at which such 25,000*l.* may have been borrowed by the company. Taking the saving at 25,000*l.* and not at 29,000*l.* per annum, and the anticipatory construction of the new works will, by the preliminary devotion of them to the manufacture of locomotive stock and trucks, produce to the company, in the course of four years, the entire cost of such works.

The locomotives that have been built at the Swindon works, and now running on the line, are amongst the best ever manufactured in this country. Not only are they the most powerful in the world, both as respects their capability to deal with heavy loads and attain high velocities, but their manufacture may be said to be almost perfect. We have frequently been over the shops when the men have been at work, and have derived much pleasure from observing the great care with which all of them attended to the duties committed to their charge. The most sedulous attention is paid to their spiritual and moral welfare by a painstaking and excellent clergyman; a well-selected library has been provided for them; a mechanics' institution formed, and a cricket ground opened for their amusement; and the happy consequence is, that a more intelligent, industrious, or well-behaved body of mechanics is

not, we believe, to be found in the kingdom.

A few weeks since we gave the quantity of coke burnt by the "Great Britain," eight-wheeled engine, with a train of 90 tons, travelling at an average speed of about 37 miles per hour, between Paddington and Swindon, with five stoppages. The quantity was as high as 51 lb. per mile, and the train was very heavy, a strong wind prevailing during the whole journey, and the velocity was very high. Yesterday we had an opportunity of ascertaining the consumption of coke by the "Iron Duke," one of the eight-wheeled class of locomotives, with a train of about the same weight as the one already alluded to, but travelling at an average velocity of only 27 miles per hour, between Paddington and Swindon, with the five stoppages, and back with 60 tons at upwards of 25 miles per hour, with sixteen stoppages, and we found the average consumption of coke over the whole journey was under 29 lb. per mile. The "Iron Duke" has an eight feet driving wheel, 18 inch cylinder, and 24 inch stroke. With 60 tons up from Swindon yesterday, the driver cut off his steam at 9 inches, and kept his time at the stations with perfect ease. We believe this consumption of coke, taking the weights of the trains, the stoppages, and the speed into calculation, is as low as upon any line in the kingdom.

#### Buffalo and Mississippi Railroad.

Continued from page 729.

We give this table of distances because we think it may be found very useful as a matter of reference.

#### Table of distances—counted from Chicago, Illinois, to

	Miles.
Galena, via Rockford—stage road,.....	160
Prairie du Chien, via Galena and Mississippi river,.....	254
Pern, on Illinois central railroad, Ill.—stage road,.....	101
Ottawa, via Joliet, Ill.—stage road,.....	85
Stephenson and Rock Island on the Mississippi river—stage road,.....	183
Peoria on Illinois river—stage road,.....	175
Warsaw on Mississippi river, via Peoria and railroad—stage road,.....	291
Springfield, Ill.—stage road,.....	249
Southport, Wisconsin Territory—stage road	59
Racine, " " " " " " " "	69
Milwaukee, " " " " " " " "	97
Head of steamboat navigation on Illinois river—canal, 100 or " " " " " "	954
Mouth of Illinois river—Illinois river and canal,.....	346
St. Louis, on Mississippi river—Illinois river and canal,.....	376
Mouth of the Ohio river, (Cairo) on Mississippi river—Illinois river and canal,.....	566
New Orleans, on Mississippi river—Illinois river and canal,.....	1594
Mouth of the Mississippi river—Illinois river and canal,.....	1698
Cairo—over the central railroad,.....	420
Mouth of the Wabash river—canal, Ill., Miss. and Ohio rivers,.....	675
Lafayette, Ind.—same course via Wabash river,.....	1036
Madison, Ind., on Ohio river,.....	951
Cincinnati, on " " " " " " " "	1061
Portsmouth, on " " " " " " " "	1173
Milwaukee, Wisconsin Territory—lake,.....	80
Mackinac, Michigan—lake,.....	330
Mouth of Kalamazoo river, Mich.—lake,.....	80
St. Joseph, Mich.—lake,.....	62
New Buffalo, " " " " " " " "	45
Michigan city, Ind., (Government survey) lake,.....	39
Detroit via Mackinac—lake,.....	631

Middle Island, on lake Erie—lake,.....	684
Sandusky point, " " " " " " " "	686
Cleveland, Ohio, " " " " " " " "	731
Dunkirk, N. Y., " " " " " " " "	856
Buffalo, " " " " " " " "	889
Point Maitland, at entrance to Welland canal—lake,.....	858
Kingston, Canada, on lake Ontario—lake and canal,.....	1066
Ogdensburg, N. Y., on river St. Lawrence—lake, canal and river,.....	1125
Montreal, Canada—lake, canal and river,....	1226
Quebec, " " " " " " " "	1367
Gulf of St. Lawrence—lake, canal and river,....	1490
Detroit—lake and central railroad,.....	264
Middle Island, lake Erie—lake and central railroad,.....	317
Sandusky Point, Ohio—lake and central railroad,.....	319
Cleveland, Ohio—lake and central railroad,....	364
Dunkirk, N. Y., " " " " " " " "	489
Buffalo, " " " " " " " "	522
Point Maitland, Canada—lake and central railroad,.....	491
Buffalo—railroad route through Canada—lake and central railroad,.....	476
Buffalo, by land, via Michigan city, Niles, Kalamazoo, central railroad, Detroit, London, Hamilton and Queenston, Canada—stage route and railroad,.....	562
Michigan city, Ind.—Buffalo and Mississippi railroad,.....	51
Laporte, Indiana—Buffalo and Mississippi railroad,.....	63
South Bend, Indiana—Buffalo and Mississippi railroad,.....	90
Elkhart, Indiana—Buffalo and Mississippi railroad,.....	106
Union Mills, Indiana—Buffalo and Mississippi railroad,.....	145
Ohio and Indiana line—Buffalo and Mississippi railroad,.....	170
Toledo, Ohio—Buffalo and Mississippi railroad,.....	236
Middle Island, via Toledo—Buffalo and Mississippi railroad and lake,.....	281
Sandusky Point, Toledo—Buffalo and Mississippi railroad and lake,.....	278
Cleveland, Ohio, via Toledo—Buffalo and Mississippi railroad and lake,.....	328
Dunkirk, N. Y., via Middle Island—Buffalo and Mississippi railroad and lake,.....	450
Buffalo, N. Y., via Middle Island—Buffalo and Mississippi railroad and lake,.....	486
Point Maitland, Canada, Middle Island—Buffalo and Mississippi railroad and lake,.....	452
Kingston, Canada, Middle Island—Buffalo and Miss. railroad, canal, and lake,.....	663
Ogdensburg, N. Y., Middle Island—Buff. and Miss. railroad, canal and lake,.....	722
Montreal, Canada, Middle Island—Buff. and Miss. railroad, canal and lake,.....	853
Quebec, Canada, Middle Island—Buff. and Miss. railroad, canal and lake,.....	961
Gulf of St. Lawrence, Middle Island—Buff. and Miss. railroad, canal and lake,.....	1087
Lower Sandusky, Ohio, via Toledo—Buff. Miss., and Ohio railroad,.....	967
Cleveland, Ohio, via Toledo—Buff. Miss. and Ohio railroad,.....	246
Ohio and Penn. line, Ohio, via Toledo—Buff. Miss., and Ohio railroad,.....	404
Dunkirk, N. Y., Ohio, via Toledo—Buff. Miss., and Ohio railroad,.....	472
Buffalo, N. Y., Ohio, via Toledo—Buff. Miss., and Ohio railroad,.....	514
Albany, N. Y., same course to Buffalo, and by Albany and Buff. railroad,.....	837
New York city—same course to Albany, and by Hudson river,.....	986
Boston, Mass.—same course to Albany, and by railroad,.....	1037
New York city, via Buff. and Miss. railroad, Ohio railroad to Dunkirk, and by New York and Erie railroad,.....	940
Pierpont on the Hudson—same route,.....	918
New York city—Buff. and Miss. railroad, lake Erie, Buff. and Albany railroad and Hudson river,.....	958
New York city—Buff. and Miss. railroad,.....	



lake Erie, Erie canal, and Hudson river,	998
Boston, Mass., same course, and by railroad,	1049
" " " " and by Buffalo	
and Albany railroad,.....	1009
Cincinnati, on Ohio river—Buff and Miss.	
railroad, and Wabash and Miami canals,	474
Portsmouth, on Ohio river—Buffalo and	
Miss. railroad, Ohio railroad and Ohio	
canal,.....	645
Lafayette, Ind., via Buff. and Miss. railroad,	
and Wabash and Erie canal,.....	457
Madison, Ind., via Michigan city, Laporte,	
Lafayette and Indianapolis,.....	309
Lafayette, Ind., on the Wabash and Erie	
canal—same course,.....	148
Springfield, Ill., via Michigan city, Laporte,	
Lafayette and Danville,.....	313
Alton, Ill., same course to Springfield, thence	
by railroad to Alton,.....	373
St. Louis, Mo., same course to Alton, and by	
Mississippi river,.....	393
Detroit by land, via Michigan city, Niles,	
Kalamazoo and railroad,.....	297
Big bay, Noquet, the extreme north end of	
Green bay—by lake,.....	285

## REVENUE FROM PASSENGERS.

The information collected concerning this division of our investigation separates itself into several parts.

FIRST.—A distinct portion of the travel passes through Chicago, and is that furnished or attracted by the Buffalo and Chicago steamboats, and the Mail-steamboat running between Chicago and St. Joseph, in connection with the Central Railroad in Michigan.

From the best authority, the number of passengers passing east and west, taking the above boats, during the navigation season, is 500 a day. Calling the season six months, or 180 days, we have for the annual number 90,000 passengers. Allowing that only 54,000 of these would go on the rail-road, at \$6 each, the revenue from this source would amount to \$324,000.

SECOND.—In the table of statistics, (page 40, column 20,) we have given the number of travellers passing through each of the five northern counties of Indiana, destined east and west. As these counties are situated in an east and west direction, it is supposed, the numbers are only different estimates of the same travellers, and do not include those bound in a transverse direction, who would necessarily be intercepted by the road, and would more or less contribute to its support, taking the average of these counties (say 13,000) to be the number of through-passengers, paying at the rate of \$6, we have a farther accession to the revenue of \$78,000.

THIRD.—Considering emigrants as passengers of the second class, we get from column 19 of the table the average number, say 20,000, who would pay \$4.50 each—yielding to the revenue 90,000. Under this item we may include the freight which the emigrants would pay for the transportation of their teams, goods, and perhaps much of their live stock; neglecting, however, the live stock, each wagon would weigh, on an average, 900lbs., the load 1600lbs., and the horses 1500lbs.—together, two tons. The number of wagons (see column 18 of the table) we will call 5,000, making the total weight 10,000 tons; which, at \$5 a ton over the whole road, gives for this part of the revenue \$50,000. Adding together the revenue from the emigrants and their freight,

we should get from this source \$140,000; but as the whole of the emigrants and freight might not take the road, and as many who did might not pass over its whole length, we will make a liberal allowance, and call the revenue \$100,000.

FOURTH.—The way-travel, which we consider distinct from the second item, depends upon the density of the population, and in some degree on the amount of capital employed in manufacturing purposes, within a limited range of the railroad. It was estimated by the Directors of the New York and Erie railroad, in their second report in 1841, that the population in the counties contiguous to the Erie canal, its branches, and the railroads and other roads along its line, contributed to the revenue of those works, at the rate of three dollars per individual. Applying this rule to the population given at page 66, viz: 140,606 souls, we should obtain for this item, the sum of \$421,818. But as this ratio seems high; and, as it may be, that the different occupations and circumstances of trade, differ in the two districts, having some influence on this ratio, we will call the revenue from this source, only half of the above amount, say \$200,000.

FIFTH.—The above four items are specific, and based on reliable data. To these we propose to add a fifth item, embracing those passengers who would be diverted from other present channels of communications, besides those above considered, in consequence of the greater facilities offered in the proposed road, by the saving of time, expense, and avoiding of greater risk of life, and injury, in river, canal or lake boats. The railroad, if constructed upon the substantial plan the estimate contemplates; and if a speed of perhaps 40 miles an hour be adopted; would attract many travellers from other parallel lines, and may have in many cases a controlling influence in directing other roads yet to be built, towards this main artery between the east and west. Possibly a portion of the Canada travel, to take advantage of the superior facilities of the line, might be drawn across or around the head of Lake Erie, and contribute to the revenue. Should a railroad be built from Detroit to Toledo, with a distance no greater than that found by a direct route measured on Farmer's Map of Michigan: say 53 miles. The distance from Detroit via Toledo to Michigan city, would be the same as from Detroit via Central railroad and St. Joseph, thus:—

Detroit to Toledo,.....	53 miles.
Toledo to Michigan City,.....	186 "
	239 "
Detroit to St. Joseph,.....	202 miles.
St. Joseph by land to M. city,.....	37 "
	239 "

Under the above considerations, and for the immediate contributions of such sources, is added the sum of \$50,000.

## REVENUE FROM FREIGHT.

Much as has been given in the preceding pages, with a view of satisfying those persons who may take an interest in this project, that there would be carried on the road, a large amount of the products of the field, forest,

mines, and manufactures, within its own proper region; and that it would draw largely from the other connected lines of communication already in operation, in process of completion or projected; when all should form one extended system. Still it is somewhat difficult to assign satisfactorily, the precise amount of a portion of the freight which would be offered to the road at certain points; and the revenue to be derived therefrom. In other districts we have good assurance that the road would be well encouraged; and we proceed to show the estimated amount of receipts, based on a tariff which would compete with the lake navigation; using recent statistics, particularly the table at pages 38, 39, 40, 41.

FIRST.—Of the business which was done at Chicago in 1844-5 [see p. p. 43—44—45] the road would probably take of the high cost, and light articles, an amount, which would yield a revenue of \$26,000. But if the light and costly goods now imported into St. Louis for its own consumption, and for the trade of the Upper Mississippi, are to be diverted on the opening of the Illinois and Michigan canal, and the Chicago and Galena railroad; from the Ohio and Mississippi rivers, the present channels, to the lakes; we might with safety rely on the above amount being increased to \$50,000. And if we add to this sum, the revenue to be derived from wheat, and other cheap articles, which would without question, be transmitted over the road from Chicago, during the winter, \$50,000, we have altogether for this item, \$100,000.

SECOND.—The amount of way-freight can be stated with more certainty. Wheat, on which the charges for freight would compete with the lake navigation in the summer season, forwarded—

From eleven counties in Indiana, would pay.....	\$365,125
From the two counties in Ohio, Williams and Lucas,.....	24,001
From five counties in Michigan,.....	114,372
	\$503,500

Revenue from merchandise imported into the same 18 counties,.....	37,080
Revenue from Salt imported into the same 18 counties,.....	13,369

Aggregate revenue from some of the most important articles of export and import, \$454,950.

THIRD.—This item is contingent like the 5th item of the passenger revenue; and is added for the same general reasons, depending upon the superior facilities anticipated from this line, in consequence of its direct connection with the Ohio railroad to Cleveland, the Illinois and Michigan canal, and the Chicago and Galena railroad. It is supposed that 2500 tons, exclusive of the tonnage belonging to St. Louis and Galena, noticed in the 1st item, would be a small allowance for this portion of the business; calling the charge 3 cents per ton per mile, or \$7 00 through,—

The revenue would be,.....	\$17,500
FOURTH.—For carrying the United States Mail, say.....	22,550

## RECAPITULATION.

Gross Revenue from Passenger Travel, 1st item—Through travel diverted from

steamboats, .....	\$324,000
2d item—Through travel now passing along the route, .....	78,000
3d item—Emigrants and their freight, .....	100,000
4th item—Way travel, .....	200,000
5th item—Contingent travel, .....	50,000

\$752,000

**Gross Revenue from Freight.**

1st item—Through freight furnished by Chicago, .....	\$160,000
2d item—Way freight, .....	451,950
3d item—Contingent freight, .....	17,500
4th item—Carrying the United States Mail, .....	22,550

\$595,000

Total estimated revenue for Freight and Passengers, .....

\$1,317,000

Deduct annual cost of working the road, say 50 per cent. of the Gross Revenue, .....

\$673,500

Net Revenue—equal to 15½ per cent. on \$4,267,000 the estimated cost of the road with a 59 lbs. rail, or nearly 13 per cent. on \$5,215,000, the estimated cost with a 80 lbs. rail, .....

\$673,500

It should be stated here, that the above estimate of the revenue from freight supposed to be carried over the road at rates competing with the Lake navigation, includes all the exports and imports given in the statistics properly belonging to the way-business. If we retain these competing prices, a portion of the business might still be conducted by the lake boats; but a small reduction in the railroad tariff would ensure this business to the road: still it is assumed, that the road will be taken in preference to the lake boats; even if the charges are alike.

The total tonnage included in the above four items of freight which would move on the railroad east and west, is estimated at 124,600 tons. Of this tonnage it is estimated 106,600 tons will move east; and 18,000 tons west—and the whole tonnage would be equivalent to 17,854,616 tons carried one mile, computing upon the actual distances the freight would pass on the road. There was carried on the Western railroad in 1845, 14,560,223 tons one mile.

The average cost per ton per mile, of the same total tonnage is 3½ cents, excluding, of course the emigrant teams and their effects. The amount of tonnage passing east in a year, would require two trains a day, each to load with 170 tons of freight, this load, however, would be confined to the most easterly locomotive stages of the road, and where there would be no grades of importance to ascend, the country being flat. The average daily load of a train passing east from Indiana into Ohio, and which would have to pass up a grade of 44 feet per mile, is found to be 150 tons; and at points further west the loads would be diminished.

The freight engines made by Messrs. Hinckley & Drury with eight wheels, have an insistent weight on the driving wheels of 30,000 lbs. Calling the friction of the train 8 lbs. per ton, and the adhesion of the driving wheels one-fifth of the insistent weight, we get a power to draw up a plane 45 feet to a mile, a gross load of 480,000 lbs. nearly, including the tender, the net load in this car might be called 152 tons; consequently we have a power sufficient to draw the required load of 150 tons up the grade of 44 feet per

mile. It would be expedient to arrange the locomotive stages, so as to have a short one to include the three steep grades at miles 67, 79 and 82 on the line—[see p. p. 19]; such an arrangement would allow the engines on that division to make three trips a day, on the occurrence of an extra amount of freight to be forwarded east.

The passenger engines, made by the same company, weighing 16 tons, with 12 tons insistent weight on the driving wheels, would have ample power to draw the regular trains fully loaded, up grades rising at the rate of 45 feet per mile, supposing the train to be composed of

2 first class 8 wheel pass'g'r cars, car'g. 128 pass'g'rs.	
1 second " " " " " " " " " "	61
1 baggage 4 wheeled car, " " " " " "	4½ tons.
3 cars for emigrant's effects, " " " " " "	11½ "

Such a train could be propelled up the supposed grade at a velocity exceeding 30 miles an hour, provided the boiler of the locomotive had sufficient power to produce the requisite quantity of steam. That is to say, the adhesion would be sufficient to draw the load at that velocity.

**PASSENGERS MOVED ON THE RAILROAD.**

The total number of passengers, which will pass on the road, in both directions, reduced to through passengers, may be stated as follows:

Number of passengers according to the 1st item of passenger revenue, .....	54,000
Number of passengers according to the 2d item of passenger revenue, .....	13,000
Number of passengers according to the 3d item of passenger revenue, .....	14,222
Number of passengers according to the 4th item of passenger revenue, .....	33,334
Number of passengers according to the 5th item of passenger revenue, .....	8,334

Total number reduced to through passengers, 122,890

Total number daily, reduced to through passengers, .....

392

Allowing four trains to run over the road per day, the quota for a train would be 98 passengers.

The effects of the emigrants would amount to 7,200 tons annually, and if we suppose the whole to be moved westwardly by two trains, the amount per train would be 11½ tons. These effects in practice, would no doubt be carried by the freight trains, as they generally would go light loaded in returning west, and relieve the passenger trains of this part of their burden, supposed in the statement above, to be attached to them, amounting with the three cars to about 10 tons.

The railroad, we are satisfied, could be worked as cheaply as any of the railroads in Massachusetts. The fuel for the locomotives could be had for a trifle more than the cost of cutting and hauling it to the several depots along the line. Coal for the repair shops, at either terminus of the road, could be had at exceedingly low prices, and could be substituted for the wood fuel of the locomotives, when the country becomes divested of the present extensive tracts of timbered lands. The unfrequency of deep snows would exempt the road from an item of expense, which is of considerable importance on the eastern rails, for here the snow seldom covers the ground in depth exceeding 6 or 8 inches. The cause of this deficiency of snow may be

sought for, in the peculiar position of the strip of country through which the line runs, in relation to the great sheets of water forming the Upper Lakes. One of these, Lake Michigan, having a depth increasing from 600 feet at its south end, to 900 feet at its north; never freezes entirely over; and the ice that is formed, is kept in motion much of the time by the winds, which drift it along the shores, or drives it from one side of the lake to the other. The prevailing wind blows from the northwest, wafting the warmed atmosphere from the surface of the lake, over northern Indiana and Ohio, probably changing into rain, what otherwise would be snow in those districts. In summer, by the same operation of nature, the temperature of the same region, is kept comparatively cool.

In our estimate of the revenue of the railroad, we have endeavored to exhibit a fair statement of the business that may be anticipated for the first year or two after the road has been opened: but should others form a different opinion from what has been given here, I would refer them for further evidence of the great increase of the lake commerce to the numerous publications which have appeared from time to time in the newspapers and public journals, and to the more authentic reports made at different times to Congress, touching the actual state and progress of this commerce, and the statistics of the states and territories bordering the lakes.

It is allowed on all hands, that alleviations from the existing impediments and inconveniences are greatly wanted on these waters; and that government, in case of refusing aid for removing these inconveniences, would seriously affect the enterprise of a large portion of the Union.

I feel in a degree authorized to allude here to an opinion, concerning the importance of the lake commerce, formed by the Board of Commissioners who went out from government in 1845 to view the harbors and other public works on the lakes. I have been informed that they, after their investigation, came to the conclusion (which possibly has been published) that such was the increase, prospectively considered, of the business on the lakes, and the difficulties which presented themselves in opposition to any feasible plan, for accommodating the navy that would be required in a few years; that if government should then begin to erect the necessary structures, supposing they could appropriate the large sums of money that would be wanted, these works could not be executed with the acceleration the necessities of the trade would demand.

Under such an impression of the amount of business which is in a few years to have place, according to the view just stated, can it be doubted that a railroad line so acceptable in its geographical and statistical position, would not yield to the stockholders a liberal remuneration, and at the same time be a work, both in a civil and military point of view, of great public convenience.

I am most respectfully,  
Your obedient servant,

GEO. R. BALDWIN.



**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

2m32

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

### WELDED WROUGHT IRON TUBES

From 4 inches to 48 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PLUM.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**CHILLED RAILROAD WHEELS.—THE** undersigned are now prepared to manufacture their improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

**A. WHITNEY & SON,**

Willow St. below 13th,

Nov. 10, 1847: [if.] Philadelphia, Penna.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR

PASSENGERS, SPECIE, GOODS, PARCELS, etc.

To all parts of the United States, North and South America, West Indies, India, [overland or otherwise,] Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

**ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**

Willow Street Wharf,

Philadelphia, Pa.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

### MANUFACTURE OF PATENT WIRE

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

93v11y

### FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP** and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriut, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

### MACHINE WORKS OF ROGERS,

Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

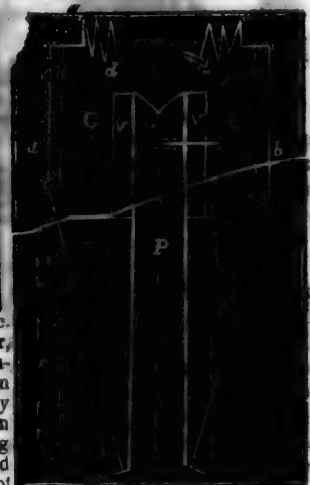
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,** a45 Paterson, N. J., or 60 Wall street, N. York.



# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

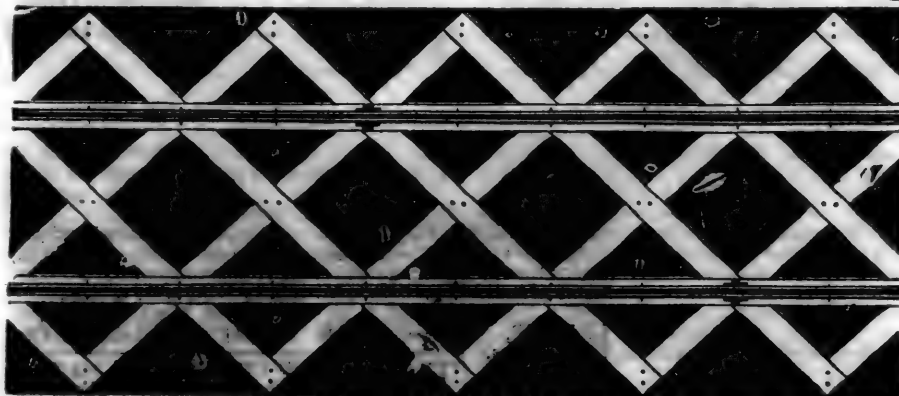


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,294 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
567 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,350 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge.	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 33f

## LAP—WELDED WROUGHT IRON TUBES

FOR

## TUBULAR BOILERS, FROM 1 1-4 TO 6 INCHES DIAMETER, and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

## RAILROAD IRON.

### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address

J. M. HOWE,

Pres't. Mt. Savage Iron Works,  
Dec. 25, 1y\* Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
**EDMUND DRAPER,**  
Surviving partner of  
**STANCLIFFE & DRAPER.**



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

**ANDREW MENEELY.**

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.—THE SUBSCRIBERS** are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
Vine St. Wharf, Philadelphia.

12f

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

**MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

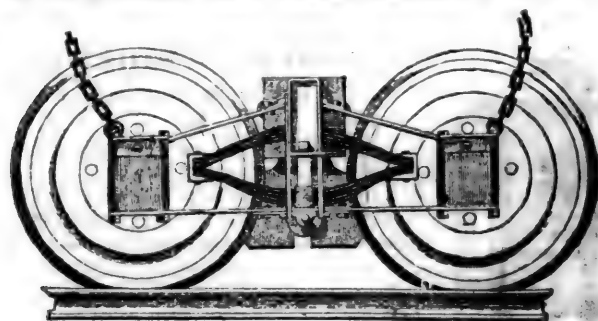
**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by **JOHN W. LAWRENCE,**  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y



# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber. These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.		
	INCH.	LBS. OZ.	INCH.	LBS. OZ.	LBS.	INCH.		
11	4 1/2	13 5	10	21 -	50	15-16		20
13	3 1/2	9 3	8 1/2	16 -	27	11-16		13 1/2
14	3 1/2	6 11	7 1/2	12 8	17	9-16		10 1/2
15	2 1/2	5 2	6 1/2	9 4	13 1/2	1-2		7 1/2
16	2 1/2	4 3	6	8 8	10 1/2	7-16		7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street, Philadelphia, Pa.

1y25

**NICOLI'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

ja15

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co. have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM REE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Supt Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Supt Motive Power.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,  
Jan. 14, 1846. [1y4] Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,  
No. 45 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,  
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

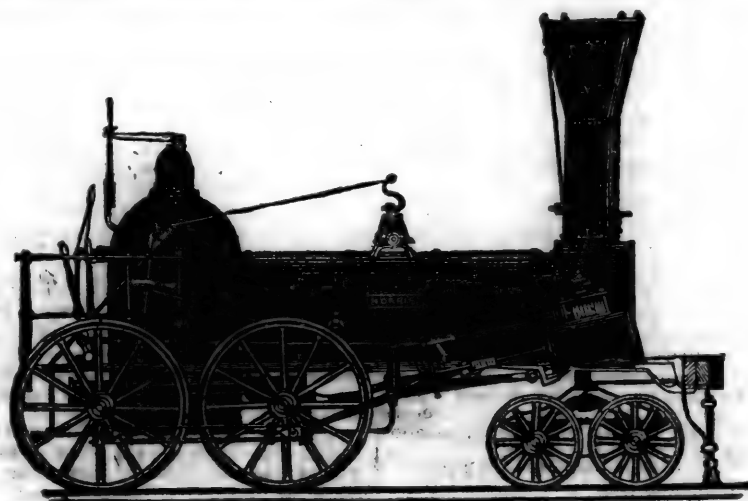
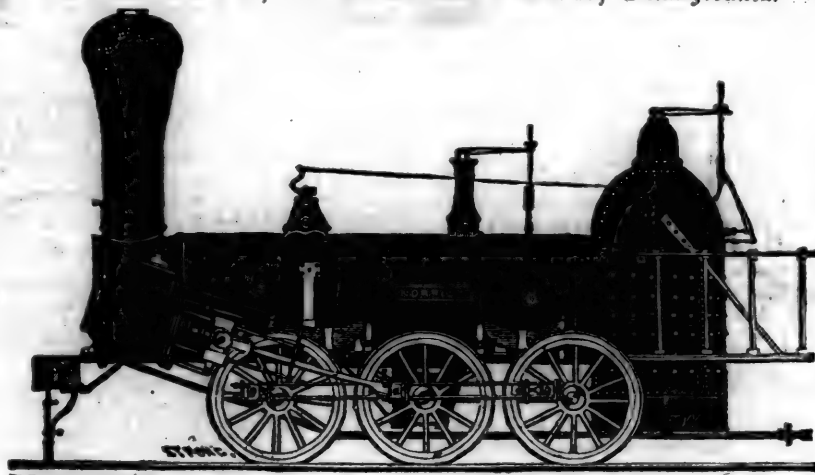
**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip,  
New York.

1y10

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1	15 inches Diameter of Cylinder, × 20 inches Stroke.
"	2,	14 " " " (× 24 " "
"	3,	14½ " " " × 20 " "
"	4,	12½ " " " × 20 " "
"	5,	11½ " " " × 20 " "
"	6,	10½ " " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size, made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.  
Murlock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.  
J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
J. Patton, Jr. } Philadelphia, Pa.  
Colwell & Co. }  
J. M. L. & W. H. Scovill, Waterbury, Conn.  
N. E. Screw Co. } Providence, R. I.  
Eagle Screw Co. }  
William Parker, Supt. Bost. and Worc. R. R.  
New Jersey Malleable Iron Co., Newark N. J.  
Gardiner, Harrison & Co. Newark, N. J.  
25,000 to 30,000 made weekly. 35

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gear-ing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** a45 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia. 25

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.  
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.  
ROBERT NICHOLS, Agent,  
No. 79 Water St., New York. 26

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28

J. BALL &amp; CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between the two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m., on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**

**PATERSON RAILROAD**  
Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave  
Paterson at New York at  
8 o'clock a.m. 9½ o'clock a.m.  
11½ o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5½ o'clock p.m.  
On Sunday.  
8 o'clock a.m. 9½ o'clock a.m.  
4 o'clock p.m. 5½ o'clock p.m.  
Office 75 Courtlandt St. 25



**CONCORD RAILROAD.—PASSENGER**

Trains in connection with the Lowell & Nashua Railroads, run daily between Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.  
Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than \$50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

N. G. UPHAM, Supt.

**NORWICH AND WORCESTER RAILROAD.**

Summer Arrangement. Change of Hours. Commencing on

Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a.m., and 4 1/2 p.m. Leave Worcester, at 8 1/2 a.m., and 4 1/2 p.m.

The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2 1/2 p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6 1/2 p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a.m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

Fares are Less when paid for Tickets than when paid in the Cars.

J. W. STOWELL, Supt.

**LONG ISLAND RAILROAD COMPANY.**

Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m. for Brooklyn, 12 m. do., at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do., at 4 1/2 p.m. do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p.m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

DAVID S. IVES, Supt.

**BOSTON AND MAINE RAILROAD.**

Upper Route, to Portland and the East.

WINTER ARRANGEMENT, Commencing October 4, 1847.

PORTLAND TRAINS.  
Leave Boston at 7 A.M. and 2 1/2 P.M.  
Leave Portland at 7 1/2 A.M. and 3 P.M.

GREAT FALLS TRAIN.  
Leave Boston at 3 1/2 P.M.  
Leave Great Falls at 6 1/2 A.M.

LAWRENCE TRAINS.  
Leave Boston at 7 1/2 A.M., 2 1/2, 3 1/2, 5 1/2 p.m.  
Leave Lawrence at 7 8 1/2, 11 a.m., 3 1/2, 6 1/2 p.m.

HAVERHILL TRAINS.  
Leave Boston at 11 1/2 A.M. and 5 1/2 P.M.  
Leave Haverhill at 7 A.M. and 3 1/2 P.M.

READING TRAINS.  
Leave Boston at 8 1/2 A.M. and 6 1/2 P.M.  
Leave Reading at 6 50 A.M. and 1 1/2 P.M.

MEDFORD BRANCH TRAINS.  
Leave Boston at 7 1/2 a.m., 12 m., 2 1/2, 4 1/2, 6 p.m.  
Leave Medford at 7 8 1/2 a.m., 1 1/2, 3 1/2, 5 p.m.

The Depot in Boston is on Haymarket Square.

CHAS. MINOT, Supt.

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**BOSTON AND PROVIDENCE RAILROAD.**

Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10 1/2 a.m. and 4 p.m., and Providence at 7 1/2 and 10 1/2 a.m. and 4 1/2 p.m.

Dedham trains, leave Boston at 8 a.m., 12 1/2, 3 1/2, 6 1/2 and 9 p.m., Leave Dedham at 7 and 9 1/2 a.m. and 2 1/2, 5 1/2 and 8 p.m.

Stoughton trains, leave Boston at 11 1/2 a.m. and 5 1/2 p.m. Leave Stoughton at 7 10 a.m. and 3 1/2 p.m.

All baggage at the risk of the owners thereof.

W. RAYMOND LEE, Supt.

**NEW YORK & HARLEM RAILROAD CO.**

Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars will run as follows, until further notice.

Up trains will leave the City Hall for—Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 9 30, 5 and 7 p.m.

For Morrisana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.—Freight train at 1 p.m.

Returning to New York, will leave—Morrisana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m. Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m. White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m. Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 46 a.m. and 4. 48 p.m. Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m. and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9 1/2 p.m.

ON SUNDAYS, the trains will run as follows: Leave City Hall for Croton Falls, 7 a.m., 4 p.m. Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m., 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers \$1, to Mechanicsville 87c., to Newcastle 75c., to Pleasantville 62c., to White Plains 50c.

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**WESTERN RAILROAD.—ON AND AFTER**

Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a.m. and 4 p.m. for Albany.

Albany at 7 1-4 a.m. and 5 p.m. for Boston.

Springfield at 8 1-2 a.m. and 1 p.m. for Albany.

Springfield at 8 1-2 a.m. and 1 1-2 and 3 p.m. (on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a.m., and arrives in New York at 7 p.m., by the steamboats Traveler, New York, or Champion.

Returning, leaves New York at 6 1-4 a.m., and arrives in Boston at 7 p.m.

Night line to New York.—Leaves Boston at 4 p.m., and arrives in New York at 5 a.m.

Albany and Troy.—Leave Boston at 8 a.m., Springfield at 1 p.m., and arrive in Albany at 6 p.m.; or, leave Boston at 4 p.m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7 1/2 a.m. and 7 p.m. For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 9 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Brattleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Supt. and Eng'r.

C. A. SEAD, Agent, 27 State street, Boston.

**NEW YORK AND ERIE RAILROAD LINE**

SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New

York from the foot of Duane St. at 7 o'clock, A.M. and at 4 o'clock, P.M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A.M. and 4 15, P.M.; Middletown at 7 A.M. and 4 40, P.M.; Goshen at 7 22, A.M. and 5 3, P.M.; Chester at 7 35, A.M. and 5 18, P.M.

Fare between New York and Otisville, \$1 50; way-fare in proportion.

For Milk—Leave Otisville at 5 1/2 o'clock, morning and evening.

For Freight—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P.M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P.M.

Freight for New York will be taken by the trains leaving Otisville at 10 1/2 o'clock, A.M.; Middletown at 11 1/2, A.M.; Goshen at 12 1/2, P.M.; Chester at 1 o'clock, P.M., etc., etc.

For further particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf

**H. C. SEYMOUR, Supt.****GREAT SOUTHERN MAIL LINE! VIA**

Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans.

The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4 1/2 P.M., Philadelphia at 10 P.M., and Baltimore at 6 1/2 A.M., proceed without delay at any point, by this line, reaching Richmond in eleven, Petersburg in thirteen and a half hours, and Charleston, S. C., in two days from Baltimore.

Fare from Baltimore to Charleston, \$31 00

Richmond, 5 60

For Tickets, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Office, Pratt street, Baltimore, to

STOCTON & FALLS, Agents.

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**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7 and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1817. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Cincinnati at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "

From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon.....\$1 00

" " " Xenia.....1 50

" " " Springfield.....2 00

" " " Columbus.....4 00

" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburgh via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.. 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North st.

**L EXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 1y

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....190 Miles.  
Macon to Atlanta—Macon and Western.....101

Atlanta to Oothcaloga—Western and Atlantic.. 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....\$0 50 To Atlanta. To Oothcaloga, \$0 75

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....0 50 0 62½

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....0 20 0 26

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....0 20 pr. 100 lbs. 35

Crockery, per cubic foot.....0 15 " " 35

Molasses and Oil, per hhd., (smaller casks in proportion). 9 00 12 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....1 25 1 50

Ploughs, (small,) and Wheelbarrows.....0 80 1 05

Salt, per Liverpool Sack.....0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y21

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery.....40 cts. per hundred. On hdds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Sup't. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad. JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00

Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25y





# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 48.]

SATURDAY, NOVEMBER 27, 1847.

[WHOLE No. 597, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, November 27, 1847.

## A WORD TO THE FEW.

The current volume of the Journal is nearly completed—four numbers more, and the Index, will complete the twentieth volume, and the fiftieth year of its publication. There are yet quite a number of accounts for the current year—as well as a few for previous years—which are not paid. This delay to each subscriber cannot benefit the parties—while to us the delay of one or two hundred is a very serious matter, and may even be the cause of discontinuing the publication entirely.

The difficulty, and expense, of sending an agent to each subscriber—scattered, as they are, all over the Union—is to great to be encountered; and the losses from removal, changes of circumstances and death—when the accounts are suffered to run for several years—are to great for so small a circulation; therefore it has become a matter of necessity to call upon those in arrears to remit the amount by mail at once—before the close of this volume, if possible; and I will add that it will save trouble and postage, and be only a fair return for past delays, to enclose, at the same time, the next year's subscription. By doing so, they will materially promote our convenience, and the prosperity of the Journal.

I shall hereafter, while the Journal is under my charge, give to it my undivided attention, and hope to be able to make it deserving of a prompt and liberal support, and I shall look to every friend of the cause for aid in sustaining it.

D. K. MINOR, Editor.

Correction.—In the Report of Mr. Morton, on the Gauge question—page 749, line 13 from top of first column—for "85," read 35 pounds less.

## DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

## RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS.

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,  
ELIJAH PACKARD,  
ISAAC MILLS,

SPRINGFIELD, MASS.

## Louisville and Frankfort, Ky., Railroad.

The surveys upon this line have, we are informed, been prosecuted with spirit and success for some months past, with good success. A very favorable route has been found, over which a railroad can be constructed, with grades and curves highly favorable, and at a cost much within the average of our eastern roads for graduation. A report is now in preparation, to be submitted to the stockholders on the 9th of December, when will be decided the question of action, which we trust will be both prompt and energetic; as the period has arrived when Kentucky owes it to herself to construct railroads which will open an easy communication from her sea-board—the Ohio—to the interior. The truth is, the people of Kentucky cannot afford to be without better means of transportation and travel.

## New Inventions—of Old Instruments.

The following has been sent us by way of showing that what has been long in use, and of much utility in this country, has been recently discovered in England. Similar discoveries are often made—not only in England, but in this country also.

"BLADE PROTRACTOR. (With an engraving, Plate XVI.) Registered by Mr. James Basire, Jun., of Red Lion Square." Civil Engineer and Architect's Journal, page 310, London.

The above appears to have been entered for patent on 4th August, 1847, as an original invention of Mr. Basire of London, but most of the civil engineers of the United States are familiar with it. The writer of this recognizes it as an acquaintance of long standing, he certainly saw one in 1835, since which he has seen it as an instrument of every day life, in every Engineer's office that he has

visited in the state of New York. Mr. Squire Whipple, of Utica, N. Y., invented it about 1833 or 34, and has since that time improved upon it, though I believe it never has been patented in this country. Probably the improvement will be patented, in a few years, in England, and cut off Mr. Basire's, unless he happen to be the fortunate man to discover it. Yours, D

Shady Side, November 18th, 1847.

## Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, November 18, 1847.

	Tons, cwt.
From Port Carbon.....	11,094 03
" Pottsville.....	5,120 02
" Schuylkill Haven.....	12,483 05
" Port Clinton.....	3,202 11

Total for week..... 31,900 01  
Previously this year..... 1,201,566 16

Total..... 1,232,466 17

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending November 31, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	7,278 00
Schuylkill Haven.....	2,471 01
Port Clinton.....	00 00

This week..... 9,749 01  
Previously..... 211,895 06

Total..... 221,644 07

## Tide Water, Pa., Canal Trade.

"On Tuesday last," says the Philadelphia Commercial List, of Nov. 20, "the steamer Kingston towed to this city THIRTY-FOUR large canal boats, which descended the Tide Water canal to Havre de Grace, laden with full cargoes. This was the largest 'tow' ever brought from Delaware city."

The following articles composed the largest portion of their freight—iron being the most prominent. Pig Iron, lbs.,..... 1,102,000  
Railroad Iron..... 222,942  
Castings..... 99,963  
Lumber, feet..... 267,458  
Shingles..... 360,400  
Staves, bhd. No.,..... 3,950  
" brl.,..... 500

There was not a single barrel of flour or a bushel of wheat in any of these boats. The crop of wheat in the interior of the state is very light and consid-



nable supplies are transported from this city to various points in the interior for grinding.

This is a very different state of things from last year. The business on the Chesapeake and Delaware canal is steadily increasing. During the week ending November 10, at noon, there passed through this canal 970 tons of oysters—also 723 cords of wood.

#### Ten Wheeled Locomotive Engines.

In the early days of railways in England, a rail that weighed 35 lbs. to the yard was a heavy rail—and a locomotive that weighed over five tons, with water in its boiler, was excluded from the society of its fellows on the Liverpool and Manchester road, and not allowed the honor of hauling his majesty, William the IV. at the trial of engines in October, 1829—but things have wonderfully changed during the past eighteen years—what was then a heavy rail has been entirely discarded for locomotives, and locomotives that were then pushed out of good society because they were *to heavy*, are now discarded because they are *to light*. Rails of 50 to 80 lbs. to the yard are now preferred, and locomotives must weigh from 12 to 25 tons in order to come up at all to the spirit of the age. Formerly we should as soon have looked for 6, or 8 legs upon a horse, as for that number of wheels upon a locomotive, but such has been their rapid growth, and such is their enormous weight, that they now have six, eight, and even ten wheels.

It is amusing, as well as instructive, to look back, occasionally, and compare the past and the present. And we will compare a performance upon a neighboring railroad, in July, 1832, with a regular working upon the Reading road in 1847.

We give the following, from the Railroad Journal of July 14, 1832. It is headed "Railroad Experiments," and reads thus.

"*Railroad Experiments.*—Extract from the report of John Randel, Esq., Engineer in chief of the New castle and Frenchtown railroad company's, to the Board of Directors, dated Newcastle, July 4th, 1832, relative to the performance of the locomotive 'Delaware.' This engine is one of Stephenson's make, with Booth's patent boiler, and this is the first effort made with her.

"Yesterday and to-day, says Mr. Randel, I made a trial of this engine between this place and Frenchtown, and have the satisfaction of being able to say it works well. The large radii of our curves—the least being 10,000 feet—will enable us to pass through them without abating its velocity.

"In going yesterday to Frenchtown, we passed through the 5th curve—radius 20,000 feet—with a velocity of 15 miles per hour, and in returning we passed through it at a velocity of 20 miles an hour.

"Although every part of our road is in good repair, yet, to insure safety, the embankments were crossed at a reduced velocity; shutting off the steam before we arrived at them, notwithstanding which we averaged, for the whole distance in going to Frenchtown, *about twelve miles an hour*; and when returning to Newcastle—twelve miles of the distance being performed after dark—we averaged upwards of *ten miles an hour.*"

Such was the performance of one of the first—if not the first—locomotives used in this country—only fourteen years ago, and it was then deemed astonishing; as Mr. Randel says "the shortest period of time within which we passed from one mile post to another was *two minutes*—or at the rate of *thirty miles an hour!*" It was a performance to be talked about—and it *was* much spoken of—but the locomotives of the present day do better than that, as will

be seen by the following statement in relation to the locomotives on the Reading railroad. The "Chesapeake" spoken of is one of Norris' improved ten wheeled engines, of which the accompanying cut is an illustration. It has six driving wheels and weighs 19½ tons, with 14½ tons on the drivers.

Mr. Nicolls speaks of it as follows, in a letter dated May 27th, 1847, in relation to inquiries made as to its performance.

He says—"The 'Chesapeake' has been running for about two months, upon the Reading railroad, doing duty regularly with its other engines, in its coal trade.

"Her performance has been entirely satisfactory. She hauls more coal cars, in proportion to her adhesion, than any other engine on the road. She passes through curves, of any radius, with as much ease as any other engine we have. She is less injurious, in proportion to her gross weight, or to her adhesion, upon the rail, curves and bridges, than any engine hauling coal upon the Reading railroad: from which it follows, that the amount of coal hauled by the 'Chesapeake,' for any given period, is passed over the road with less wear and tear, and risk of accidents to rail and bridges, than by any other engine used upon same road.

"Their comparative weights and trains are as follows, viz:

"The 8 wheel engines in common use weigh 22½ tons, have 22½ tons adhesion, and haul 413 tons of coal.

"The 6 wheel engines weigh 19½ tons, have 19½ tons adhesion, and haul 393 tons of coal.

"The 'Chesapeake,' 10 wheel engine, weighs 19½ tons, has 14½ tons adhesion on her six drivers, and hauls, with as much ease as the other engines, her allotted load of 384 tons of coal.

"I consider that the Chesapeake possesses to a greater extent than any other engine, I have yet seen, the combined qualities of efficiency and ease to the rail and bridges.

I am very respectfully yours,

(Signed) G. A. NICOLLS,

Engineer, etc., Reading Railroad.

After five months further use, having passed over the road more than 130 times, Mr. Nicolls writes as follows, dated "Reading, Pa., October 29, 1847."

"Messrs. NORRIS, BROTHERS, PHILADA.

"Gentlemen:—I have just received your favor of 28th instant, in relation to your Chesapeake engine.

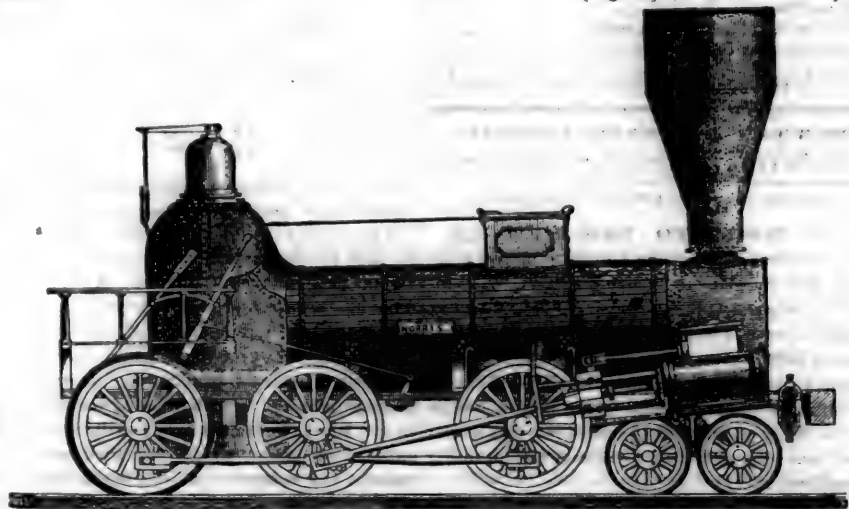
"I have the pleasure of stating that the 'Chesapeake,' 10 wheel engine, built by you for this road, has run since March last, some 13,000 miles, in the coal trade of the road.

"She turns curves with as much ease as any other engine we have, and has proved as safe in keeping the track.

In her performances in detail, as compared with those of other engines, I beg to refer you to my letter of 27th May last, on same subject.

Very respectfully yours,

(Signed) G. A. NICOLLS,



#### Iron Bridges.

We referred, in the Journal of 13th inst., to Mr. Whipple's treatise on bridge building. We have the opinion of eminent engineers in favor of Mr. Whipple's plans and views, from which, and the examination of a small model exhibited to us at our office, and we believe also at the Fair of the Franklin Institute, we are led to form a high opinion of his iron bridges, especially for railroads—and therefore we give place to the following communication.

For the American Railroad Journal.

I wish to make a few remarks upon "Rider's Iron Railroad Bridge" upon the Harlem railroad, a little north of the tunnel, for the purpose of making practical deductions relative to the economy and safety of iron bridges for railroads generally.

This bridge is 70 feet long and about 20 feet wide, has two pair of ways, and is supported by two iron trusses, about 7½ feet high from centre to centre of the upper and lower horizontal ribs or stringers. These stringers are parallel, the upper one of cast

iron, of a T formed cross section, containing about 12 square inches to each truss. It is cast in two symmetrical parts, put together so as to "break joints." The lower stringer is composed of two series of bars or plates of wrought iron, each 4 inches deep by ½ inch thick, placed ½ of an inch apart, to receive ½ inch diagonal bars between them. These stringer bars are spliced so as to "break joints," and at each splicing is a plate 4½ inch, about 20 inches long, with two bolts each side of the joint.

There are vertical struts of cast iron, about 3 feet 4 inches apart, of an H formed section, containing about 8 square inches, extending from the upper to the lower stringer. Two diagonal ties of wrought iron, 2½ in the center, and 2½ at the ends of the truss, crossing one another and pass through a hole in the centre of each vertical strut, being secured to the top and bottom stringers by a bolt through each end. The above are the essential parts of the truss.

I estimate the weight of this structure approxi-

mately at 32,000 lbs., equal (in its effects towards breaking the truss in the centre) to 8,000 lbs. on the centre of each truss.

I also estimate the ordinary freight trains passing over the bridge, at 1000 lbs. per foot; (only half what I am in the habit of estimating the possible load of a railroad bridge). Of this weight, about  $\frac{1}{4}$  is sustained by one truss, the centre of the track being about 5 or 5½ feet from one truss, and some 15 feet from the other. The load of 70,000 lbs., then, is equivalent to  $1\frac{1}{2} \times 70,000 = 26,250$  lbs., in the centre of the truss, which added to the 8,000 for the weight of structure, gives 34,250 lbs.; and one-half of this weight, is the force with which each abutment would react upon the truss, with such a load in the centre.

Now, regarding the centre of the top stringer as a fulcrum, half the length of truss as the average, 17,035 lbs., ( $= 1\frac{1}{2} \times 34,250$ ) as the force; the cohesion of the lower stringer as the resistance, and 7½ feet, (the height of truss from centre to centre of stringers) as the leverage upon which the resistance acts. The following equation gives the tension  $T$  of the lower stringer, in sustaining the load,  $7.5 T = 17,125 \times 35$ . Whence  $T = 80,000$  lbs., very nearly,  $= 20,000$  lbs. to the square inch of cross section, allowing nothing for the portion of the bars cut off by the bolt holes for connecting the diagonals; which cannot be much less than  $\frac{1}{4}$  of the whole. This would increase the tension to 26,666 lbs. to the square inch.

It may be thought that a portion of this truss is sustained by the diagonals. It is clear enough, that in the absence of the lower stringers, the diagonals would receive the strain which otherwise falls on the lower stringer. But as the truss is constructed, when loaded uniformly throughout its whole length, those diagonals only are brought into action which extend upward and outward, in the direction from the centre towards the ends of the truss; and at the centre of the truss, the diagonals running upward and outward as above stated, are connected with the lower stringer some 4 or 5 inches asunder, and consequently cannot relieve the stringer of any part of the horizontal strain.

It may be possible, however, to strain up the diagonals so tight as to produce some relief to the stringer, but such condition of things is not to be depended on. It is manifest that the lower stringer should be adequate to sustain all the horizontal stress occasioned by the uniform load.

It appears then, that a portion of the wrought iron in the bridge in question, is liable to a stress of more than 26,000 lbs. to the square inch, from a dead load on one track, of 1000 lbs. to the foot run, and yet the bridge endures the daily and rapid transit of the trains of the Harlem railroad.

If, then, bridges be built on the plans I have given in my work on bridges, which are estimated to sustain trains of twice the above weight, or 2000 lbs. to the foot run, with a stress of only 10,000 lbs. to the square inch of wrought iron, on any part, instead of 26,000 lbs. as above, or less than  $\frac{1}{4}$  of the stress for the same load, will not the chances of failure be reduced almost beyond the range of possibility, as far as wrought iron is concerned?

I have not time now to pursue this subject, nor is it necessary to my purpose. I only wished to point to the experimental lesson afforded by the bridge here spoken of.

If I have committed any errors in calculation or otherwise, I shall be very thankful to any one who will point them out. I am certainly far from expecting to promote my own interest by continuing in

error myself, or by leading others into error on this subject.

S. WHIPPLE.

Utica, N. Y., Nov. 1, 1817.

#### For the American Railroad Journal. Railway Breaks.

In looking over several of your back numbers, I find that you are trying to impress upon inventors the importance of bringing out some kind of improvement in breaks for railroad cars, so much needed to secure safety to lives and property in railroad travelling. You refer, I believe, to a break, to be under the control of the engineer, and by him applied to a whole train of cars. I have no doubt this might be done, still it must, I think, be attended with such difficulties as will always prevent its adoption; especially as there is no difficulty in making breaks, on the common plan, with sufficient power to hold, and cause all the wheels of a train to slip on the rail. It is only necessary that railroad companies furnish a good breakman, to each car, instead of one or two for six or eight cars, as is usually done—and, indeed, of what use are breaks on each car, if they are not applied when needed. Railroad companies generally dislike to use breaks that will entirely stop the wheels and cause them to slide, and they may well do so, as wheels are thus much injured by having flat places on the tread, giving them a more violent concussion to both wheels and rail, and producing a very unpleasant motion to cars and passengers.

Now, sir, if there is any way to compel railroad companies to increase the number of breakmen, especially on passenger trains, all possible safety can be secured by the use of the old breaks. There is not so much need of a breakman on every car for freight trains, as their speed is much slower. But if any one should be fortunate enough to introduce a break that will be free from objections, it certainly would be a valuable work for the discoverer, and well might he claim the gratitude of the travelling public, while he would see its adoption by all railroad companies.

Yours respectfully,

F. M. RAY.

New York, November 11, 1817.

REMARKS.—The great object, as we conceive, of improved machinery, is to accomplish the desired object in a better manner, at less expense, than in the ordinary way; and therefore it is that we have so frequently called the attention of our readers, among whom we are sure there are many able inventors—to the subject of an improved break, by which a train may be brought to a stand still, if need be, in the shortest possible time, without making any of the wheels slide on the rail—and thus injure, not only the wheel, but also the cars and road, and also without the increased expense to the company, or to the business of the road, of a breakman to each car.

It may be a difficult thing to do,—but it can and must be done—to arrange a break on each car, which shall touch every wheel, and yet be under the control of one man—or two men—not the engineer especially, though it may, perhaps, be so arranged that he may put it in operation, in case the brake-man should be out of his post at the critical moment.

The reason why it is necessary to break a car so hard as to make the wheels slide, is that so few wheels are touched by the break. A train of six passenger cars has 48 wheels, and if each wheel is borne upon at the same time, to the extent of half or two-thirds the power required to make them slide, and the engine properly managed same time,

the train will very soon stand still—though sixteen of those wheels might slide on the rail, and yet not stop the train in so short a distance.

The great object we have in view is to avert danger, and avoid increased expense and we are quite sure it is only necessary that the attention of the right man should be turned to the subject to accomplish the object; and we doubt not he, who ever he may be—will derive more benefit from it, when it shall be accomplished, than did the inventor of the entire railroad system. Small things often yield more profit to the inventor than mighty ones.

#### South Carolina Railroad Report.

This report for 1816, with one or two others, received some months since, has been laid aside until it is almost time to look for another for 1817—it is not, however, too late to bring it into the volume where it belongs, and we therefore now give it a place to keep up the history of this work, which was one of the first railroads brought into use in this country, and for some years the longest line of railroad in the world under the management of one company.

On referring to the volumes of the Journal, we find the first report published by us, in relation to this road, by that accomplished engineer, Horatio Allen, now of New York, was published on the 17th of March, 1832—and the second on the 2d of June, of the same year—of course it is due to it, and to ourselves, to continue its history from year to year, as long as we have the supervision of the Railroad Journal.

It will be seen, on referring to the report, that the earnings of the road were, in 1816, \$30,383 greater than in 1815. The increase of 1817 over the previous year will probably be more than twice that amount.

We are gratified to learn that the wise policy of liberality and co-operation exists between the different lines of railroad in that region—that they "repudiate all idea of monopoly, rivalry and competition," and look upon each "as a part of a common system; the veins and arteries of a great commercial body, animating in the reciprocal circulations of its trade, the whole, and paralyzing by impediments, or restrictions, no portion."

This is as it should be, and we hope to see this wise policy pursued throughout the country.

It will be seen that the Camden branch is in a fair way for completion; and efforts are now making to extend the Columbia branch to Greenville, and the Camden branch to Charlotte, in North Carolina, and thus open a wider field to Charleston. It is, possibly, fortunate that the publication of this report has been delayed until this time, as it will be better understood, and all its connections seen upon the map published by us in this number, to show the importance of an early construction of the line from Wilmington to Manchester, and thus fill up that unseemly gap.

CHARLESTON, S. C., 9th Feb., 1817.

To the Stockholders of the South Carolina Railroad Company:

GENTLEMEN: The board of directors have the honor of presenting to the stockholders their third annual report of the operations of the South Carolina railroad company, for the year ending the 31st of December, 1816.

The gross receipts for freight, passengers and mail service, for the year 1816, was \$558,697 71. The expenditures for same period, embracing ordinary current ex-



penses: additional machinery, improvements on depots, and interest on foreign and domestic debt, was . . . . . 389,148 10

\$169,549 61

Amount of dividends paid . . . . . 147,900 00

Balance applied to improvement of property, . . . . . 21,619 61

From the above, two semi annual dividends of \$2 25 and \$2, making \$4 25, on each share was declared, being within a fraction of 5½ per cent. on the par value, \$75 of the road stock, and leaving as shown, \$21,619 61 applicable to objects as stated.

The gross receipts from all sources for the year 1846, were . . . . . \$589,081 52

The expenditures for same period, including current expenses, additional machinery, improvements on depots: interest account: paving Meeting street, and damages, were . . . . . 418,171 17

170,910 35

Amount of dividends paid . . . . . 140,725 50

Balance applied to improvement of property and reduction of indebtedness, . . . . . 30,184 85

The two semi annual dividends were, for the first half year \$1 50, and the last \$2 50, making \$4 on each share, and equivalent to 5½ per cent. on par value of stock, and leaving an exhibited \$30,184 85, applicable to improvements. The large amount under the general head of expenditures for the year '46 as compared with those of the previous years of 1844 and 1845, may be explained by an appropriation for the improvement of Meeting street, and for damages; particularly in the loss from fire, (supposed to be the act of an incendiary) of a large amount of cotton, while in the cars on the track at Aiken, ready for departure by the downward train the next morning. If these amounts, as in the auditor's comparative statement of ordinary expenses, since the consolidation of the two companies be deducted, we have for the legitimate and unavoidable expenditures, under all the various heads, of current, materials, property, and interest account, \$282,972 31 in the year 1844—279,475 43 for 1845 and 300,672 25 for 1846—showing, as compared with 1844, an excess of expenditure of 17,699 91, against an increased receipt of \$50,210 57: and as compared with the last or previous year, an excess of 21,196 79 of expenditure against 30,383 81 of increased receipts. A considerable portion of this excess of expenditures may be accounted for in the enhanced cost of supplies; in the large amount of materials on hand (as exhibited in the schedule from the master of the work shops;) in preparation for the construction of an additional number of cars; and in the increased expense necessary to preserve the track of the Hamburg road from the injuries inflicted by the heavy locomotives, and the higher speed of the passenger trains. The relative proportion likewise between the receipts and expen-

ditures this year, were greatly disturbed by the low rate (with a view of relieving the suffering planters of the interior) at which the company undertook to transport grains.

Upwards of 250,000 bushels of corn alone the last season, were transported to Columbia, Hamburg and intermediate stations; and at the moderate rate of freight charged, a *portion of it free*, it is apparent that much the largest moiety of the amount was made chargeable in the columns of expenses, while a very small balance was carried to the credit side of receipts. The receipts of the first half year of 1846, which were greatly affected by the reduced crop of 1845, had likewise an influence in disturbing the relative proportions between receipts and expenditures, for by reference to the auditor's accounts it will be seen that of the amount \$589,081 52, received for the year 1846; but 251,741 36 were taken in the first half year, while the last half year, the receipts were swollen to 337,340 16: and under such a pressure on our locomotives, cars and available force, as unavoidably to involve greater expense from the necessity of loading cars and running the trains at night.

The report of the auditor with the accompanying tabular statements, numbered from 1 to 7, exhibits, in a clear view, the state and condition of the property and finances of the company, with its liabilities, assets, etc., for the year 1846; and of the monies received and expended on account of the stock, and on the construction of the Camden branch road. The tabular statements Nos. 4, 5 and 7, exhibit the number of passengers conveyed on the road, the amount of freight, separating that which goes into, from that which comes from the interior, the number of bales of cotton received at each station, the number of packages and pieces of merchandize forwarded by railroad into the interior, and the amount of articles received by railroad for transmission to other places, with a comparative statement in table No. 7, of the income of the road for the last three years (commencing with the consolidation) from all sources, exhibiting the average number of locomotives in active service; their arrivals and departures, with the number of miles run. Appended to these documents is a statement, for the last three months of the year, commencing with the more recent extension of the lines of railroads to the west; from our agent in Hamburg, of the number of packages of merchandize, with the value of the freight thereon, forwarded to the different stations beyond Atlanta in Georgia, where the trade with North Alabama, the Coosa district and eastern Tennessee may be said to commence, with an exhibit of the returns of the same in cotton, grains, western productions and domestics. From these beginnings of a trade, just emerging from the western horizon, the extent of which, in the future cannot be estimated, and must greatly exceed even the speculations of the most sanguine—the stockholders will be the better judge of the facilities, which it is for the interest of this company to continue to afford. In connecting the forwarding, with the other obligations of

common carriers, your direction have been influenced not merely by the example and practice of other companies competing for the same business, but with a view of so cheapening and of so perfecting the means of transportation as to bring not only contiguous points, but even those the most remote, in certain and intimate communication with each other, thus augmenting the transportation on the road as the ranges and circles of commercial intercourse were extended, diverting to, and through Charleston, merchandize and produce which hitherto sought the markets of consumption by other channels; and into which they would still continue to flow, if equal and greater facilities were not afforded by what is now known and designated as the Carolina and Georgia route to the west. The policy pursued has not been without its favorable results on the transactions of the road. As this matter, however, was referred to a committee to report on, your board do not consider any further remarks necessary beyond the presenting, on this occasion, statements and facts for the determination of the maturer judgment of the stockholders.

The report of the superintendent of the road, Mr. Lithgoe, is not as favorable as your direction could have desired. His statements which have been confirmed by the inspections of the president, are: that the track, from the very light iron rail in use on the Hamburg portion of the road, is beginning to suffer from the heavy freight trains, and locomotives, which the increased business has now rendered indispensable. The greater number of passengers in the daily trains, and the higher speed exacted under contract for mail service, and to meet the competition of other travelled routes, have likewise conspired to produce similar injurious effects. The iron rail is wearing daily, and in some instances has become so thin, (though of the flange form) as to be very little superior to the common flat bar, which the South Carolina canal and railroad company found necessary, at a former period, to remove. This subject, in part, was brought to the notice of the stockholders in the last annual report, and the recommendation of importing a certain amount of new rails annually to be substituted for those which were impaired, met with your concurrence; subsequent experience, however, afforded more time for examination; and which accords with that of other railroad companies in Europe and the United States; who, in the first instance, used rails of a moderate weight on their tracks, with the views of Mr. Lithgoe, (under whose daily inspection is brought the effects of heavy weights in rapid motion on a light superstructure,) would favor the policy of preparing at an early date for the gradual substitution of 6 or 10 miles annually of a heavier; for the flange rail now in use, to the extent at least of the main trunk of road from Branchville. This trunk, 62 miles in extent, now sustains the business of both the branches to Columbia and Hamburg, and will soon have added that of the Camden and other roads now projected, with the view of a connection with the South Carolina. Promptness of execu-

tion, certainty and security are the strong recommendations of railways, and if they are not so constructed as to ensure these requirements by the public, the transportation on them will diminish or be executed without satisfaction, with frequent interruptions and at great hazard. The stockholders of the Baltimore and Ohio company, the road of which was constructed, on the lower section from Harper's Ferry, with a light flat bar, have commenced the substitution of an iron rail of a heavier and more servicable weight; and the able report of its engineer, accompanied with valuable statements and calculations of the injury inflicted on iron rails, according to the velocity and amount of tonnage transported periodically over them, demonstrates that in the greater annual expense of maintaining a track with a light rail, the company in the course of time will be amply remunerated for the larger capital, which in the first instance a rail of heavier weight will involve. The experience on that road (which in all its operations is more assimilated to those of South Carolina, than any more to the north of it.) but made more apparent from the heavier amount of tonnage transported than the South Carolina has as yet attained; has been amply confirmed by the report of Mr. Lithgoe. While the maintenance of way on the Columbia road, constructed on cross ties, with a T rail of 57 lbs. to the yard, (though the timber of a considerable portion of the lower section had to be removed,) does not exceed \$160 to the mile—that on the Hamburg road has amounted to \$351—and even at this cost the superstructure in many places, has with great difficulty been preserved in the condition that the interests of the company prescribes. The present iron, (says the superintendent,) embeds itself in the timber, "so much so that the timber has to be removed more from this cause than from decay. I am of the decided opinion that the timber in which the iron lays, on an average will not last longer than three years. If this be the result, is it not a matter for consideration whether it would not be better at once to adopt a heavier iron?" While this subject of defect in the road, and if the remedy necessary is brought to the attention of the stockholders, it is with some satisfaction that the board have to charge the injury sustained and complained of to an increased and continually increasing business, which in requiring a superstructure equal in strength to the tonnage daily exerting its weight and power on it, furnishes in the increased profits of transportation, the adequate means to renew the road, in sections, gradually, as proposed.

The enhanced expense in the maintenance of way; of a superstructure too light and fragile for the weight and velocity of the machines it has to resist, forms but a small portion of the injuries otherwise sustained, in all the varied operations of the road. If the track is weak and defective, and subjected to repeated dislocations; accidents accumulate, delays in the arrival of trains, involving loss of time, become more frequent, damages and forfeitures oftener incurred; and the injury

to machinery in locomotives of a delicate texture and easily deranged, becomes incalculable. In a heavy superstructure therefore, and a firm unyielding road bed, are reliance alone to be had for a perfect railway; adapted to any emergency, and equal to any power or velocity which it may be desirable to apply on it. This subject, therefore, is submitted to the serious consideration of the stockholders, that they may either by a committee, reared for this special purpose, examine into, and devise the means necessary to remedy the approaching difficulties, in the defect of road, anticipated; or devolve on our successors in office, ample power to act in the premises as the interest of the company may recommend. The procuring the labor necessary and required on the different sections of road, by hiring at fair rates, is another difficulty presenting itself. After hands, says the superintendent, for many years in the company's service, have acquired the knowledge and skill necessary to make them valuable, the company are either compelled to submit to higher rates of wages imposed, or to pass others at a lower rate of compensation through the same apprenticeship, with all the hazards of another strike in their turn, by the owners. The difficulty involves the advantages of the policy of owning by purchase the labor necessary for service on the road, or to continue to be exposed to all the hazards of hiring under the present system, and the chances of being raised upon in times of emergency. Mr. Lithgoe reports that ten women and seventy-five young men may be advantageously and profitably employed in the place of many of those now hired; the wages paid for whom, would be a high remuneration to the company, for the capital so invested. All of which views are respectfully submitted to the consideration of the stockholders.

The report of the master of the work shops, and of the agent of transportation, exhibits the state and condition of the property in machinery, the number of cars on hand, the number of locomotives in service and their present value, the number of those disabled but susceptible of repair, and the number which from age and hard usage are unfit for renewal, though portions of their parts may be worked up in other machinery—and the additional number of both cars and locomotives which will be necessary to meet the pressing demands of a constantly increasing business to the satisfaction of the community to be accommodated. This report is very satisfactory as to the service which has been rendered the last year by the company's locomotives, the number of miles performed, and the proportional number of engines compared with the entire number owned by the company, which have been kept in repair and on active duty. It is believed that the performance for the last six months of the year with this limited power, will bear a favorable comparison, with the like number and class of locomotives on any other road. With this report is a statement of the work performed at the smith shop, foundry and car factory. These statements go far to re-

commend the policy of a large addition to both the company's car and locomotive power. It is true economy never to press too severely upon machinery so easily deranged as that on a locomotive, and always to be so amply supplied. No locomotive after performing a trip exceeding 260 miles in extent, should resume her position on the track before a thorough examination, and reported in a proper condition by the master of the workshops. The exigencies of the business of the road, compelling the extra service of a locomotive, when disabled, or not in a proper condition, is always performed at a cost detrimental to the best interests of the company. In England, and on all economically managed railroads, it is considered advantageous to own double the number of locomotives which the actual business of the road may require, so as to afford time for examination, and reparation of all on their return trips, and to be prepared with extras for every emergency, without resorting to unprofitable expedients to meet the unexpected demands of the trade, or of a community for accommodation. *Semper Parati*, is the true motto for the guidance of all railroads, and in accordance with its admonitions, your present directors have made arrangements for such an increase of motive power, passenger and burden cars for the ensuing year, as will, in their judgment, meet the requirements of the road, and with the experience which has been their guide in this case, they recommend the execution to those who may succeed them in office.

The report of the engineer, Mr. McRae, of the Camden branch, shows the present condition and progress of that work, notwithstanding a suspension of operations the last spring for nearly two months, with a hope that the citizens of Sumter might be accommodated by a change of route in the road proposed; and the subsequent summer and winter interpositions of successive floods in the Wateree river, the work has been steadily progressing, and a hope is still encouraged that with the powerful aid of steam, and energetic contractors, the passage of the Wateree river and swamp may yet be accomplished in time to enable the company to press forward, with all practicable dispatch, during the summer and fall months, with the superstructure to Camden. A large portion of the grading along the entire line, is already completed; the whole is under contract; the wooden superstructure with the rails, between the Congaree and Wateree are now in progress. Iron sufficient for the completion of that section has arrived, and if the floods of the Wateree do not interpose any farther obstacles, than those which have already been encountered, the engineers feel confident that all the objects, as to time, in completing the road will yet be realized. But the best devised plans, and the most powerful of human efforts have, at times, to yield to elements which are not to be controlled, and often too powerful, successfully to resist.

Your Board of Directors, with such satisfaction, congratulate the stockholders on the beneficial results of that liberal policy, early



adopted on their part, of extending countenance and credit to all sister roads, having for common objects the bringing the western portions of our Union in more intimate, social and commercial relations with those of the south. The roads in Georgia and Alabama are rapidly and successfully progressing—many of them finished—new roads, penetrating more remote and hitherto inaccessible sections in those and the adjacent states of Mississippi and Tennessee, projected; and companies in progress of organization for immediate and successful action. The road from Chattanooga to Nashville is no longer a problem, and we have every assurance of the most energetic efforts to commence, and push it rapidly to completion. The Hiwassee railroad, opening a communication to Knoxville and the interior of Eastern Tennessee, has been revived, and will receive a new impulse on the completion of the Western and Atlantic to Cross Plains, now only awaiting the daily expected arrival of the iron to finish it. The interior of Alabama is looking with deep interest to a railroad communication between the Georgia and Tuscaloosa, by the Rome branch and valley of the Coosa. Superadded to these, charters have been granted by both of the legislatures of North and South Carolina, and our people everywhere awakening to the importance of rendering more intimate and binding by railroads, the city of Charleston with the interior districts of our own and more northern sister.

The most gratifying symptom, however, in all these movements, is the enlightened spirit by which the projectors seem now to be influenced—repudiating all idea of monopoly, rivalry and competition. We have witnessed with gratification, in a recent convention at Macon, indications of a desire for that concert and union in all these enterprises, by which our southern railroads are to be considered not exclusively state works, but as a part of a common system; the veins and arteries of a great commercial body, animating in the reciprocal circulations of its trade the whole, and paralyzing by impediments, or restrictions no portion. We cordially respond to views so enlightened, and so well calculated, at this time, to stimulate and bring in closer communion, interests, having the common object of prosperity to all.

Respectfully submitted,  
JAMES GADSDEN.

#### Property Statement South Carolina Railroad Company, December 31, 1849.

To stock—for \$35 per share on 34,800 shares.....	\$2,610,000 00
Installments forfeited.....	312,417 65
To surplus income.....	40,708 52
To balance of indebtedness.....	2,765,090 74
	\$5,728,216 91
By purchase Charleston and Hamburg railroad, embracing road, machinery, etc.....	\$2,714,377 50
By purchase of land attached thereto.....	59,741 30
By purchase of negroes.....	11,863 19
	\$2,785,981 99
By construction of Columbia branch.....	2,863,654 49
By lands purchased since January, 1844.....	\$5,083 83
By less to credit Aiken lands.....	35 35
	5,048 08

By negroes purchased since Jan. 1844.....	800 00
By suspense account.....	8,490 00
By rail iron purchased.....	15,773 97
By improvement of depots.....	8,680 29
By improvement of property.....	30,437 49
By shares in the railroad.....	40 00
By amount due on pay rolls and bills not charged, but forming part of the balance of indebtedness per statement No. 2, Dec. 31st, 1845.....	9,210 60

\$5,728,216 91

#### Statement of the Number of Passengers conveyed upon the Railroad between Charleston, Hamburg and Columbia, with the amount received for Freight and Passage, from 1st January to 31st December, 1846.

Months.	Number passengers.	Am't for passengers.	Am't for freight.	Total amount.
January.....	4,349	13,859 03	18,876 14	32,735 17
February.....	3,706	13,303 79	19,725 29	33,029 08
March.....	4,581	16,309 80	30,608 26	46,918 06
April.....	16,667	19,153 78	26,674 09	45,827 87
May.....	4,597	14,919 63	22,018 50	36,938 33
June.....	3,855	11,469 87	12,773 29	24,236 16
July.....	3,421	10,094 08	14,283 13	24,377 21
August.....	3,209	9,147 31	15,221 86	24,372 20
September.....	3,624	11,788 40	31,563 60	43,352 06
October.....	5,092	17,694 65	60,809 46	78,594 11
November.....	5,033	18,412 04	55,808 91	74,280 95
December.....	6,839	21,303 53	43,174 39	64,482 92

Total.....	64,136	177,444 20	351,689 92	529,134 12
Received for through tickets sold by Georgia railroad company the past year.....				12,900 67

Total freight and passage.....	531,334 79
Transportation of mails for the past year.....	39,746 76
Rents, storage and other minor sources.....	7,999 97

Total receipts for the year.....	569,081 52
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The number of bales of cotton received in Charleston by the railroad, from 1st January to 31st December, 1846, was.....186,271

#### General statement of receipts and expenditures for the year 1846.

Gross receipts from all sources in first half year.....	\$251,741 36
Ordinary current expenses for same time.....	193,592 21
Net profit for the first half year.....	58,149 15
Gross receipts from all sources second half year.....	337,340 16
Ordinary current expenses for same time.....	224,578 96
Net profit for 2d half year.....	112,761 20
Net profit for the year 1846.....	170,910 35
From the net profit two dividends have been declared, making the average per cent. on the joint dividend 5 1/2 per cent. on par value.....	140,725 50

Leaving a net balance accounted for as follows.....	30,184 85
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Reduction of balance of indebtedness in the year.....	5,946 15
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Reduction of amount to debit of improvement of depots and of property, including one locomotive, and charged to income account in last 6 mos.....	11,332 78
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Paid for improvement of depots and property, including one locomotive in first six months.....	9,634 49
Paid for lands.....	20,967 27
Paid on account construction of Columbia branch.....	2,961 43
	310 00
	30,184 85

Gross receipts from all sources for year.....	\$569,081 52
Paid ordinary current expenses for year.....	418,171 17

Net profit for the year.....	170,910 35
Deduct two dividends.....	140,725 50

Leaves a balance accounted for as above.....	30,184 85
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Interest on sterling bonds for the year, and included in the above amount of ordinary expenses (\$418,171 17) \$108,530 05

THOMAS WARING, Auditor.

#### Wilmington and Manchester, N. C.

—Or the Connecting Link—RAILROAD.

This break in the line of railroad from Portland in Maine, to the extreme limits of Georgia, has been a fruitful theme of complaint, by travellers between the north and south. It is true, that the people of North and South Carolina have done more to serve the public—or that part of it which travels,—than they have been paid for; yet, notwithstanding what they have done, they have been anatomized for the very little which they have left undone to complete the line of railroad between the Wilmington and the South Carolina railroads. Good steamboats, and the best attention, between Wilmington and Charleston, will never satisfy those who are subject to—or happen to enjoy the pleasures of—sea sickness from an outside—or sea passage.

The inconvenience from sea sickness will be as great, to most persons, from Charleston to Wilmington as to New York, and therefore it is that a new line of superb steamers is to be added to that now composed of the "Southerner" and the "Northerner,"—between those two cities, whereas; if this railroad was now in operation, it is probable that the present line of steamboats would answer for some years yet.

There have been spirited efforts made by the people of Wilmington to open this road. In 1845 and 46 there was much exertion, and a survey was made, and a report published, which exhibits a very favorable route. The distance from Wilmington to Manchester, where it will connect with the Camden branch road, is one hundred and fifty-eight miles—151 of which are straight lines—with grades and curves as favorable as on most other roads in the country—and it can probably be built on terms highly favorable, owing to the make of the land and the abundance of good timber along the line. The estimate of its cost, made by the engineers—which we now give, accompanied with a map showing the line and its connections north to Philadelphia, and south nearly to Alabama and Tennessee—puts down the entire amount, for a single track, depots, and a good outfit of machinery, at \$1,466,000; and the net income for the first year at \$100,760, or over 6 per cent.—which ought of course to increase annually—as business and travel must necessarily increase. We have had this report some time in hand, but the map only reached us a short time since, and we are now able to,—and with much pleasure—present the subject to our readers in such a way as to enable them to see, and feel its importance. They can see its relative position, and the necessity of its early construction.

By examining them a pit will be seen that the Camden branch, which is now in course of construction, and which will probably be extended to Charlotte; and the Columbia branch is now, and has long been, in operation—and which will, beyond all question, be extended to Greenville—will open to this road an extensive region of the upland and most productive part of South Carolina; which, in addition to the thorough and way business, must ensure good returns upon the investment; and, therefore, the people of Philadelphia, Baltimore, Washington and Richmond have a double inducement to give their aid to this work, and especially the merchants of Baltimore and Philadelphia—to whom a wide berth is given by all who go direct from Charleston to New York, by those splendid steam packets. If

the merchants of Philadelphia and Baltimore would secure the visits of southern merchants and business men, they must aid the people of Wilmington, and others laboring in this enterprise, to build this road; they must subscribe to its stock—they must show that they feel an interest in its early completion—they must do as Boston did to draw business from New York. Indeed they have the same inducements for aiding in this work, that Boston had in building the Western road, and has in constructing the Ogdensburgh and the Vermont roads; and, to a certain extent, that the Philadelphia people have in building the central road to Pittsburgh—viz: to make the communication easier with Philadelphia than with other cities.

The amount required from them will be comparatively small—yet very important at the outset, and therefore it is that we desire to recommend this work especially to those who have so direct an interest in it.

The report it will be seen was dated December, 1846: Since then meetings have been held, and stock subscribed, as will be seen by referring to the Journal of July 10th, and August 21st, but to what extent we are not now informed—though we believe that the prospect of an early commencement of the work is quite flattering.

The report is addressed to those who furnished the means to make the survey, and says—

In compliance with your wishes and instructions, a corps was organized and the survey of the route for the contemplated road commenced in July last.

A report upon the survey, together with a map and profile of the route, we beg leave herewith to submit to you.

At the commencement, various schemes were proposed for making the necessary connection with the Wilmington and Roanoke railroad. One to cross the cape Fear, below the junction of the two rivers, with a bridge or steam ferry boat; thence over the swamp on Eagle's island and Brunswick river.

A second, to start from the depot of the road on the hill, and curving around to cross the Northeast at or near Hilton; thence across the point between the two rivers and over the 'Northwest.' And a third, to commence at some point on the west side of the northwest branch of the cape Fear, and above the point at which the Brunswick breaks from it—and from this point the connection to be made by means of a small steamboat.

This last, being decidedly the cheapest; motives of present economy determined us in selecting it as the point at which a line to serve as a basis for our estimates should commence.

Starting, then, at 'Meare's Bluff,' 3 miles above town, the table land being reached at an elevation of 14 feet above tide water, the line pursues a northwesterly direction, for the purpose of avoiding the main body of the Green Swamp and Waccamaw lake, to near Livingston's creek, before reaching which, sufficient nothing being obtained, a change of direction is made. Crossing the creek at a favorable place, about one and a half miles south of the main road, the route, passing a half mile north of the Waccamaw lake, and about one mile south of Whitesville, is continued straight, a distance of 45 miles, to within 2 miles of Fair Bluff on the Lumber river,

a designated point in the line. From thence the route passing about a half mile back of Fair Bluff and crossing the State line 2 miles below it, runs down on the ridge between the Lumber river and Gapway swamp, and crosses the former below the mouth of Ashpole swamp, and near Floyd's ferry. Thence, below the foot of the ridge between Raft swamp and the Little Pedee, and across the latter about one mile above Dr. Gilchrist's bridge, the route follows the ridge between the 'Big Sisters' and 'Maiden Down' bays, and passes about a quarter of a mile north of Marion court house. From thence to the Great Pee-dee river, a favorable point for crossing which is found near the head of Mr. Gibson's dam. Crossing the river at this place, and the river swamp, 2 miles in extent, the route after crossing Polk swamp, follows the ridge between Highhill and Jeffrie's creek, to a point near the road leading from Darlington court house to Ebenezer church. From thence the route is continued straight, crossing Lake and Sparrow swamps, Lynche's creek, Black river, Scape O'er and Rocky Bluff swamps, to a point south of and near Sumterville, a distance of 37 miles.

Thus far the country over which the line has passed, is generally so flat and uniform as to present but little variety, and with some few unimportant exceptions, it abounds in timber of the very best quality for the construction of the road.

The graduation throughout will be comparatively slight, and of easy execution; consisting, excepting where streams and swamps are crossed, chiefly of light embankments, sufficiently high to protect the road from the water that usually remains upon the remarkably flat surface of the earth in wet weather.

From Sumterville, the route passes over a country presenting a similar appearance to that already described, until it reaches Col. John Moore's plantation. Passing about a quarter of a mile to the south of his house, it crosses the head of 'McRae's Mill Pond,' and ascending from this, strikes in Mr. Rees field, the ridge of hills, commencing below Manchester and bordering upon the low grounds of the Wateree river, known as the 'High hills of the Santee.' Passing the ridge at its lowest point, in Mr. Rees field, at an elevation of 316 feet above tide water, and about 175 feet above the Camden branch road, the route, by a continuous curve of from 2000 to 3000 feet radius, with a grade of 50 feet to the mile, and with some heavy excavations and embankments, connects with the Camden road.

Thus presenting a road 158 miles in length of which 151 miles are straight, and the balance, except that immediately at the connection, with curves of over 6,000 feet radius; with fewer heavy grades, and with less excavation and embankment than any road of similar length in the country. It may be proper here to state that we are of the opinion that further examination would demonstrate the practicability of a better route over the 'High hills of the Santee' being found, than the one here presented; time with us being limited, prevented our going into the examination as

minutely as we would otherwise have done.

Before proceeding with the estimates a description of the kind of road estimated for, becomes necessary. The graduation is intended for a single track only, and consists of excavations with slopes of  $\frac{1}{2}$  horizontal to 1 perpendicular; 10 feet wide at grade with side ditches, 5 feet wide at top, 2 feet deep and 2 feet wide at bottom. Embankments 12 ft. wide at grade, and with slopes of  $1\frac{1}{2}$  horizontal to 1 perpendicular.

The superstructure to consist of subills 4 by 10 inches under the bearing of the rails, and bedded so that their upper surfaces shall be two inches below the graded surface of the road, and at their joints resting on cross pieces of similar dimensions. On these the cross ties or sills 8 by 8 and 8 feet long, are placed three feet apart from centre to centre; every other one being notched on its upper surface for the reception of the rail; the alternate sill being brought to a level with the other by being notched on the under side and let down upon the subill. Upon the sills the rails 6 by 7, 4 feet 5 1-2 inches apart, and chamfered on their inner edges, one and a half inches, are placed; being confined to the notched sill by means of a wooden key, and kept in its place on the other by a wooden bracket on the outside of the rail. Over streams and swamps, lattice bridges and trestle work has been estimated for. The former on 'Towns' plan, roofed and weatherboarded to protect them from the weather, and of these there are four, viz: three of one span each, across Livingston's creek, Lumber and Little Pee Dee rivers, and one of two spans, with a draw over the Great Pee Dee.

The trestle work where, as in the Great Pee Dee swamps, it is not over 12 feet in height, is on the plan adopted on the South Carolina roads; the piles being capped and cross braced, with string pieces 10 by 14 in., notched on the caps and secured by means of wooden keys, and on these strings the road laid. In the Great Pee Dee swamp, trestles of the form used on the Wilmington road have been estimated for, in consequence of the height at which the swamp has to be crossed, to protect the road from the action of freshets.

For a road built in this manner, with a plate rail of 2 1-2 by 1 inch, double the weight of that ordinarily used, and consequently costing about \$1400 per mile more; (and that it will answer well for the purposes for which it is intended we think no one can doubt) we present the following estimates, viz:

For excavations and embankments, including grubbing and clearing.....	\$372,581 40
For superstructure, including turnouts.....	854,622 90
For bridging.....	105,935 60
For warehouses and water stations on line and at each end.....	40,000 00
For pay of engineers, including contingencies: (this item depending upon the time occupied in the construction of the road).....	40,460 70
For land damages.....	15,000 00
For 10 locomotive engines.....	70,000
For 8 passenger cars.....	14,000
For 4 baggage and mail cars.....	4,000
For 30 eight-wheel box cars.....	18,000
" flat cars.....	15,600-192,500 00
Add for steamboat.....	15,000 00

\$1,466,000 00



That portion of the road lying in North Carolina, 63 miles in extent, will cost:

For excavation and embankment.....	\$71,958 23
For superstructure.....	340,266 52
For bridging.....	19,570 00
For warehouses and water stations.....	13,000 00
For pay of engineers, including contingencies.....	15,200 00
For land damages.....	4,000 00
For steamboat.....	15,000 00

\$178,994 75

And that portion in South Carolina, 95 miles in extent, will cost:

For excavation and embankment.....	200,623 17
For superstructure.....	514,356 38
For bridging.....	86,365 00
For warehouses and water stations.....	27,000 00
For pay of engineers, including contingencies.....	25,260 70
For land damages.....	11,000 00
Motive power, as above.....	122,400 00

\$1,466,000 00

It will be seen that the route on which the estimates are made, is the one adopted by the convention held at Marion court house, in August last. At that convention a different route was advocated, viz: one to run from Marion court house to Sumterville direct; and its friends were desirous that a survey of it should be made. Our limited time placed this out of our power; a reconnoissance, however was made, and we intended, in compliance with a promise to that effect, to present an approximate estimate of the cost of construction on it; but learning that the charter presented to the legislatures of the two States designates in conformity with the resolutions passed at the Marion convention, the precise route over which the road is to be built, we deemed it unnecessary at present to do so.

#### PROBABLE INCOME OF THE ROAD.

Under this head, it may now properly be considered out of place for an engineer to attempt anything like an estimate, as the importance and value of railroads are so well understood by the people generally; and these estimates are often necessarily made from uncertain data: consequently fallacious, and are therefore justly looked upon with discredit. But in this instance, being enabled to present an estimate based upon information obtained from authentic sources, we may be excused for venturing upon the following, the truth of which those interested can test for themselves.

The number of through passengers between Weldon and Charleston, as ascertained from the books of the Wilmington company, for the year ending 1st December, 1846, was 11,000 which at \$6,

Would amount to.....	\$71,760 00
The freight and way passengers for the same period of time amounted to.....	92,000 00
The mail to.....	37,000 00

\$200,760 00

We honestly believe that the freighting business and way passengers on this road will exceed that on the Wilmington and Roanoke road, at least 25 per cent. in consequence of its passing through a country far more wealthy, more densely populated and consequently having more produce for mar-

ket and requiring more in return in the way of merchandize. And as regards the thro' travel, we feel no hesitation in saying that it will be increased in like proportion, as soon as this road is built; and in support of this opinion, we have only to mention a fact that can be proved by reference to the statistics of all railroads, intended, as this is, as a thoroughfare for travel: that, as in the case of the Wilmington road, this branch of business, as indeed all others, is ever steadily increasing: (see note,) and, in addition, the contemplated road will supply a desideratum long wanted; the connecting link in the great chain of improvements between the north and south.

But to return: Assuming the probable income at what we have above stated as the receipts of the Wilmington road, (of the same length,)

For the past year, viz.....	\$300,760 00
And deducting for management and repairs, a sum which we consider amply sufficient for the first five years, viz..	100,000 00

And we have left..... 100,760 00

Which shows a profit of over 6 per cent. on the estimated cost of the road. And if to this be added the 25 per cent. increase above referred to, it will give us as the net income of the road..... 150,950 00  
Over 10 per cent. on the estimated cost.

#### ADVANTAGES OF THE ROAD.

As to the advantages of the railroad we take pleasure in quoting statistical facts.

To the citizens of Wilmington we would instance the case of the city of Boston, where the multiplication of railroads leading to the city has increased the business of each of the former roads, by giving greater facilities for travel and business, and the fact which we find in Hunt's Merchants' Magazine for November, 1846, a work of undoubted authority, that: For substantial structure, and amount of investments, Massachusetts has taken a decided lead in railroad enterprise; and what was, by many, regarded as a doubtful experiment, has proved a good investment of capital. It appears from the census of last year that the increase of property in Boston, from 1840 to 1845, over that of the previous five years, was nearly equal to the total cost of the railroads of Massachusetts, or about nineteen millions of dollars. From the same source, it appears the import duties paid on goods by the Cunard line of steamers, in '40, was less than \$350 per voyage, or for the 8 voyages of that year, less than \$2800; and the same for 1845, was \$51,000 per voyage, or, for the 20 voyages of the year, \$1,020,000. All the industrial interests of the State have been invigorated and general prosperity promoted. The proceeds of her extensive fisheries and manufactures are carried, with the utmost facility in every direction, to meet the wants of consumers; and form the basis of a greatly increased general commerce.

The total number of passengers carried on the roads that diverge from Boston, in 1845, was nearly 240,000, or double the highest estimate for the trade of the same time by steamboats on the Hudson river, or nearly three times the total population of Massachusetts.

But we need not travel so far as Boston: the citizens of Wilmington have but to look at their own town and they will see an increase of population from 3000, what it was estimated at in 1833, to from 8 to 9000, what it is now estimated at; and an increase in the value of property of nearly 500 per cent.; the value of it being estimated in 1833, at \$310,000, and now, by an estimate made by a committee composed of competent men, its value is set down at \$1,500,000; and this astonishing increase in population and the value of property must mainly be attributed to the construction of the present road leading to the Roanoke river.

To the citizens of the country through which the road will pass, we can only say that all experience in railroads has established the fact that along the line and to a considerable extent on each side, the value of property is greatly enhanced, and the amount of produce made is constantly increased because of the facilities a road furnishes for sending it to market; waste lands are reclaimed, and those under cultivation improved, and the trees of the forest, formerly valueless, are made producers of wealth. With these facts it would not be difficult to prove that the increase in value of property consequent upon the construction of this road would far exceed the entire cost of the work.

Give the people but the opportunity of procuring a fair reward for their labor, and their habits of industry are stimulated, and their enterprise and ingenuity will extort wealth and comforts from sources now wholly unproductive; and with an awakened spirit of improvement, education and intelligence will be found making equal strides.

All of which is respectfully submitted.

JOHN C. McRAE, } Civil  
L. J. FLEMING, } Engineers.  
Wilmington, N. C., Dec. 12, 1846

Gauge, or Width of Track for Railroads.  
Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Morton, Esq., Chief Engineer.

Continued from page 742.

In some cases they have been so much extended, and the additional length so far removed from the fire box, that it has proved a positive disadvantage. Much of this increased length of tube is inefficient; and from their remote position from the fire add only in a small degree to the evaporating power of the boiler, for the air must be drawn thro' this additional length of tube, giving increased friction and requiring a stronger blast and a serious loss of power. It has been observed on an examination of tubes long in use, that the effect of the heat is visible only on the portion nearest the fire box.

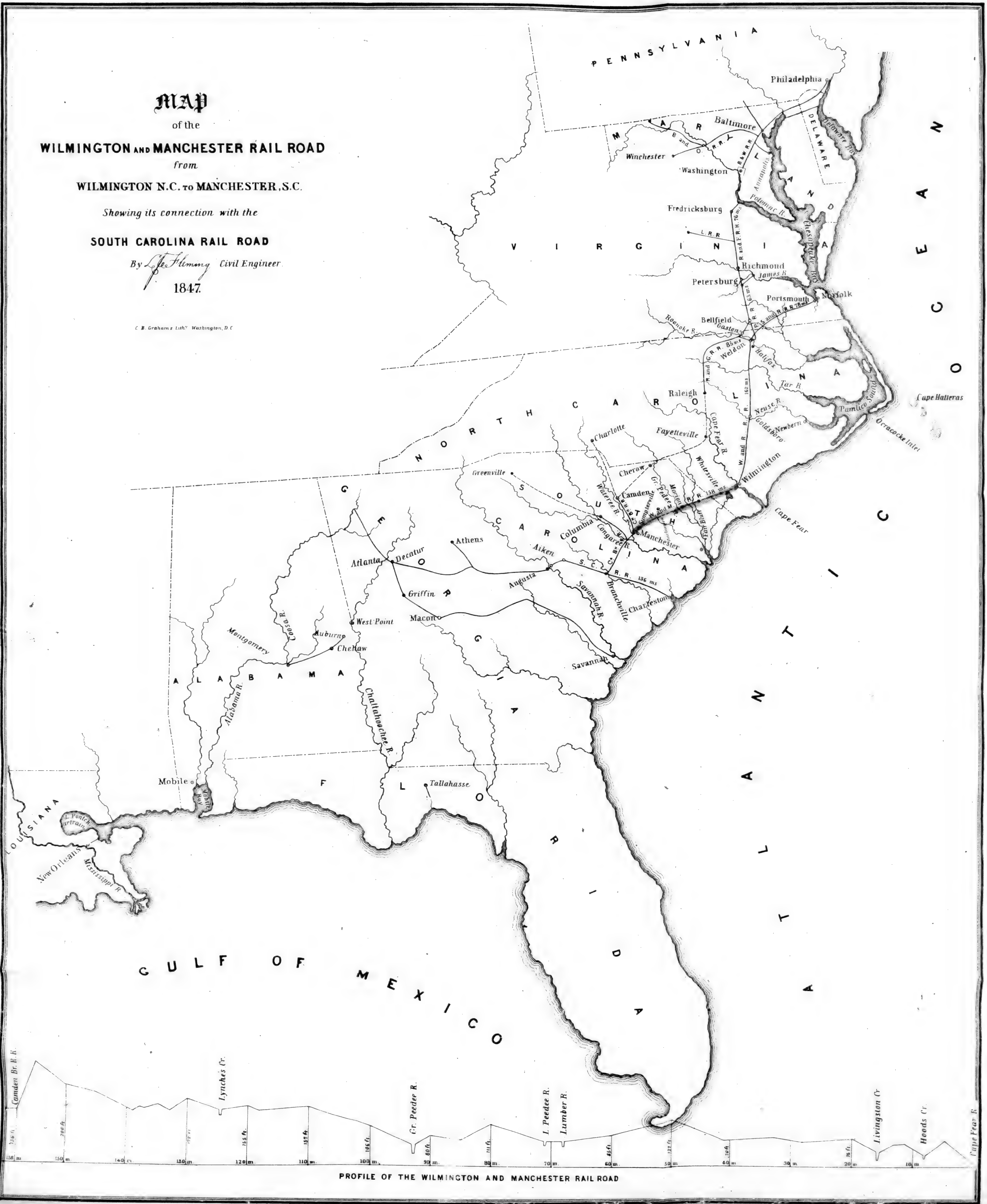
Long tubes are more liable to get out of order or leak, than short ones, on account of their flexibility and the distance between points of support.

This has proved to be the case even with new engines which had been in use but a short time. To remedy this defect, supports have been placed midway of their length; but these have given rise to other evils which are equally objectionable.

**MAP**  
of the  
**WILMINGTON AND MANCHESTER RAIL ROAD**  
from  
**WILMINGTON N.C. TO MANCHESTER, S.C.**

Showing its connection with the  
**SOUTH CAROLINA RAIL ROAD**  
By *John Fleming* Civil Engineer.  
1847.

C. B. Graham's Lith. Washington, D. C.





There can be no doubt that with equal superficial area, short tubes are the best, as they present a larger surface near the fire, are less liable to get choked, or out of order, and require less blast to produce the proper draft through them.

Mr. Stevenson, the great advocate of the narrow gauge, in his testimony before the gauge commissioners, states that they have made the boiler as wide as the narrow gauge will allow; and this is evident from the various expedients resorted to for the purpose of gaining an inch or two in width of fire box. He also states that he has increased the power by lengthening the boiler and fire box;—and that the engines are as large as ought to be put on the present roads.

It should be remembered that the weight and power of engines had been from time to time increased; that roads had been rebuilt, and their parts made stronger, in order to sustain these heavier engines up to the time when it was ascertained that the narrow gauge did not admit of a more powerful engine. Then, and not till then, was it stated that the engines were as powerful and as heavy as ought to be placed on any road.

There is no doubt that if more powerful engines could be built on that gauge, there would be no difficulty or hesitation in providing sufficiently strong roads to sustain them. The commissioners in their report to government, remark in reference to the narrow engines, that they "are as powerful as they can well be made within the limits of this gauge."

Major General C. W. Paisley, inspector general of railways, whose opinions from his position and from his not being an advocate of either the narrow or broad gauge, are entitled to great respect, states in his testimony before the commissioners, that "he does not think the Messrs. Stephenson's opinions of the sufficiency of the narrow gauge of 4 ft. 8½ in. for all purposes has been borne out by the subsequent experience of more than two years. The gauge of 4 ft. 8½ in. does not admit of a boiler of sufficient diameter or of a fire box of sufficient width to give such power to the locomotive engine as is required by the present state of railway travelling.—Mr. Robert Stevenson has attempted to get rid of this disadvantage by lengthening his boiler in the best engines constructed by him, which are also made with outside cylinders. The lengthening of the boilers appears to me to be a failure, since it has not produced engines equal in power to those of the Great Western railway; and some of the engines with long boilers which I have observed by travelling upon them, especially the one called the 'White Horse of Kent,' used on the South Eastern railway, go very unsteadily, oscillating or rolling very much, which, if the speed were materially increased I think might prove dangerous, and which must have a tendency to injure the permanent railway." "As a further proof of the inefficiency of long boilers to obtain the object in view, I may remark that the engines made by the Messrs. Sharp (brothers,) formerly Sharp & Roberts, of Manchester, as well as Mr. Tre-

vetthick, of the Grand Junction railway, at Creeve, and by Mr. John Gooch of the South Western railway, travel as quick as those long boiler engines of Mr. Stephenson's, and much steadier."

From the above testimony, it appears that engines with boilers of ordinary length in use on several roads, had produced as great results and attained as high speed, with less oscillatory motion, than the engines with long boilers. It appears further, although the advocates of the narrow gauge had asserted that it affords all the room necessary for sufficiently powerful engines, yet, a great effort had notwithstanding been made to add still further to that power, but with, to say the least of it, doubtful success.

The attempt to give engines on the narrow gauge increased power by lengthening the boiler may be regarded as a failure; and no means have been suggested whereby it is likely to be accomplished, except that of increasing the diameter of the boiler, and the width of the fire box. A wider gauge will undoubtedly afford space for these changes, and lessen the irregular motion of the engine and its liability to run off the track.

The power of an engine is in proportion to the extent of its evaporating surface, or perhaps more correctly in the language of Mr. Stephenson: "The power of the engine, supposing the power to be absorbed, may be taken to be directly as the area of the fire grate or the quantity of fuel contained in the fire box."

Increasing the size of the boiler or fire box so as to bear the same proportion to a 5½ feet track that those of a narrow gauge engine now do to 4 feet 8½ inches, would add to the extent of heating surface nearly 25 per cent.

This allows an important increase of power which will lessen the cost of transportation, and will prove highly beneficial in other respects.

There is always an advantage in having a large boiler and fire box; and although it may not be necessary at all times to use the power to the full extent, yet the same result may be obtained with greater economy, and less intense heat, consequently less injury to those parts of the engine which are so soon destroyed by fire.

The repairs of locomotive engines constitute a large part of the expenditure for power—and these repairs are required mainly on those parts exposed to the injurious effects of great heat. To work an engine economically, the boiler should never be forced by a strong blast, but the draught should be such as to produce only the amount of steam that may be applied usefully.

There is an advantage in being able to call into action the increased power, which is at command with a greater extent of heating surface and equally intense heat, for the purpose of more readily overcoming the greater resistance on portions of the road where steeper gradients prevail, or where storms of sleet and snow may have been unexpectedly encountered.

The latter difficulty is often experienced on northern roads, and more powerful engines

will be found of the greatest importance as regards economy and punctuality.

The utmost punctuality is required in the running time of trains, more particularly so on roads having but a single track where trains must pass each other at given points. A large number of the roads in the United States have but one track, and very many of the accidents on these roads result from not running to time. Delays are occasionally unavoidable, particularly with freight trains, and more powerful engines will often be capable of making up lost time, and at all times to run with greater regularity and punctuality.

But there are other and more important reasons in favor of more powerful engines. The revenue of the road is in direct proportion to the freight and passengers carried.

The effect of engines of great power is to increase the tonnage of each train, thereby with a given amount of traffic to reduce the number of trains and the number of engines required to do the business of the road.

The expenses of a road are, nearly as the miles run; therefore the effect of transporting an equal amount of tonnage with a less number of trains is an increase of net revenue.

An engine capable of drawing 20 tons of net load more than another, will, applying an average charge of 14 pence per ton per mile, increase the earnings 25 pence for each mile run; and, allowing that your freight engines will run 300,000 miles per annum, the increased earnings by adding this amount to the average loads will be £31,250 per annum: that is nearly 50 per cent. of the whole cost of running freight trains this distance.

By adding to the power of the engine, a much larger business may be done with but a small increase of cost. Many of the expenses of locomotive power are the same whatever the power of the engine. The cost of engine men and fire men, the proportionate expense of superintendence and management, the cost of oil, etc., are the same. The cost of repairs of engines do not increase in proportion to the power or the loads drawn, but, nearly as the miles run.

As it regards fuel, it may be observed that it varies with the load, but the ratio is modified somewhat by the amount consumed in getting up steam and in standing at the station. A large engine working to the full extent of its power, as a matter of course, consumes more fuel than a small one under the same circumstances. This is the only item of increased expense, and this is fully reimbursed by diminishing the delays, accidents, and extra labor attending the use of a greater number of engines. The gauge commissioners admit this, and state decidedly that economy is in favor of large engines when working at their full power.

On many narrow gauge roads it is customary to use assistant engines to a great extent, and on the London and Birmingham road, nearly 29 per cent. of the whole number of miles run by passenger trains during the half year ending June, 1845, were with two engines to each train.

To be Continued.

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.** Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

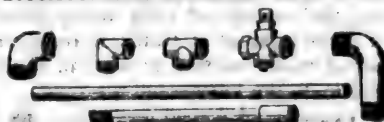
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**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 12 in culm and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER PRESS.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents.**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**CHILLED RAILROAD WHEELS.—THE** undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

**A. WHITNEY & SON,**

Willow St. below 13th,

Nov. 10, 1847. [if.] Philadelphia, Penna.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR

PASSENGERS, SPECIE, GOODS, PARCELS, etc.  
To all parts of the United States, North and South America, West Indies, India, (overland or otherwise,) Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

**ROBERT GRACIE.**

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

**SAM'L KIMBER & CO.,**

Willow Street Wharf,

Philadelphia, Pa.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

93v117

# FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Eliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

**FRENCH & BAIRD.** N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

\*, The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP** and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

**JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,** Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

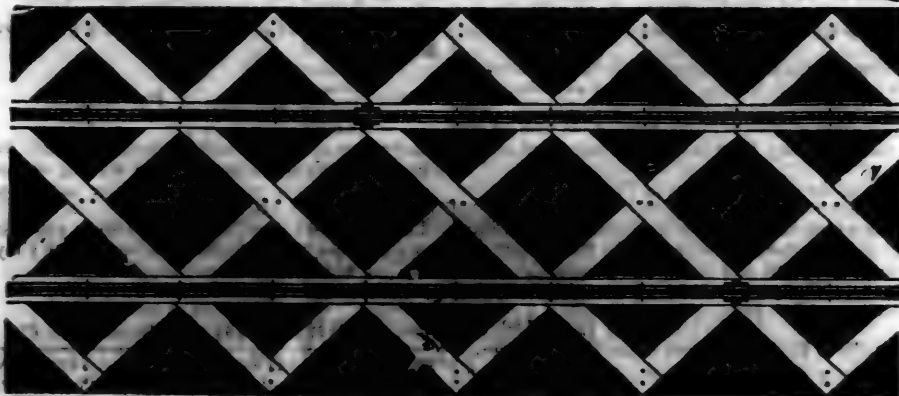


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,994 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 = \$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 = 57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge. =	600 00

Cost of one mile including the laying of the Rail. \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331

### LAP—WELDED WROUGHT IRON TUBES

FOR

**TUBULAR BOILERS,**  
FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1925

28 Platt street, New York.

### RAILROAD IRON.

**MOUNT SAVAGE IRON WORKS**

THIS Company are prepared to execute orders for Railroad Iron, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

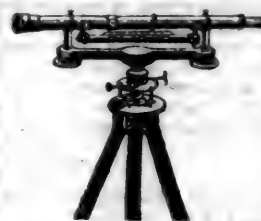
Pres't. Mt. Savage Iron Works,  
Dec. 25, 1917 Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1910 near Third,

below Walnut,  
Philad's phia.



road Depots, etc.

West Troy, May 12, 1847.

**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Rail-

road Depots, etc. ANDREW MENEELY.

1921

**PIG AND BLOOM IRON.—THE SUBSCRIBER** is agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by

A. WRIGHT & NEPHEW,

121 Vine St. Wharf, Philadelphia.

**RAILROAD IRON.—THE "MONTGOMERY"** Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.

1918

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 19

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER HAVING RECENTLY FORMED A BUSINESS CONNECTION IN THE CITY OF NEW



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, trolley ropes, &c. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.				CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.			Weight per fathom.	Diameter of iron.	
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.		LBS.	INCH.	Tons.
11	4½	13	5	10	31	—		50	15-16	20
13	3½	9	3	8½	16	—		27	11-16	13½
14	3	6	11	7½	12	8		17	9-16	10½
15	2½	5	9	6½	9	4		13½	1-3	7½
16	2¼	4	3	6	8	8		10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearings and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Mellon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents the engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

Reading, Pa.

1y45

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa. October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transport. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,] JOHN LEACH,

Jamaica November 12, 1845.

1y19 Sup'r Motive Power

## THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorus

Glendon

Spring H. J. and

Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay for orders for which are promptly supplied.

SAM'L KIMBER & CO.,

59 North Wharves,

Jan. 11, 1846.

[1y4] Philadelphia, Pa.

## TO RAILROAD COMPANIES AND MANUFACTURERS OF RAILROAD MACHINERY. THE SUBSCRIBERS HAVE FOR SALE

Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

45 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 6 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

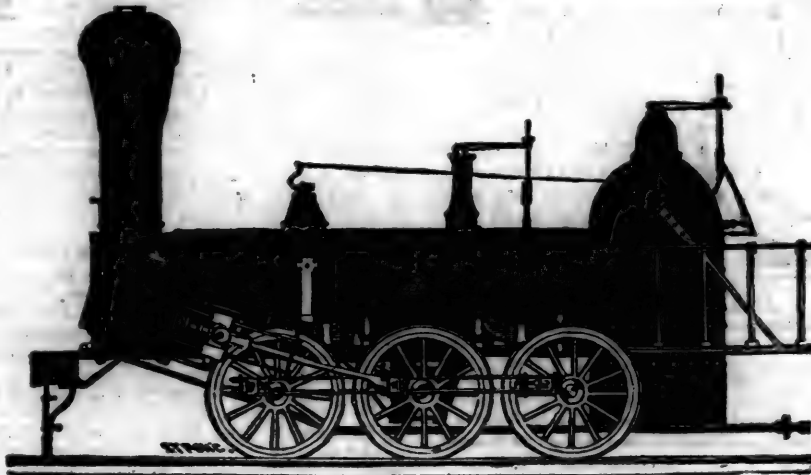
New York.

1y10



## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**M**ANUFACTURE their Patent 6Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class 1,	15 inches Diameter of Cylinder, × 20 inches Stroke.
" 2, 14	" " " × 24 " "
" 3, 14½	" " " × 20 " "
" 4, 12½	" " " × 20 " "
" 5, 11½	" " " × 20 " "
" 6, 10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, } New York.  
 Peter Cooper, }  
 Murdock, Leavitt & Co. }  
 J. Triplett & Son, Richmond, Va.  
 J. R. Anderson, Tredegar Iron Works, Richmond, Va.  
 J. Patton, Jr. } Philadelphia, Pa.  
 Colwell & Co. }  
 J. M. L. & W. H. Scovill, Waterbury, Con.  
 N. E. Screw Co. } Providence, R. I.  
 Eagle Screw Co. }  
 William Parker, Supt. Bost. and Wore. R. R.  
 New Jersey Malleable Iron Co., Newark N. J.  
 Gardiner, Harrison & Co. Newark, N. J.  
 25,000 to 30,000 made weekly.

**T**HE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. **ANDREW C. GRAY,** 445 President of the Newcastle Manuf. Co.

**R**AILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by **A. & G. RALSTON** Mar. 20th 4 South Front St., Philadelphia.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOE CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK &amp; CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York.

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

J. BALL &amp; CO.

**C**ONNECTION BETWEEN THE BOSTON and Lowell and the Boston and Maine Railroads. On and after April

1st, 1847, passenger trains between the two roads, will run as follows, viz:

Leaving Lowell at 7, 11 1-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m. to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland. **WALDO HIGGINSON, Agent**

**PATERSON RAILROAD** Summer Arrangement.

Commencing April 20th, 1847, the cars will leave Paterson at New York at  
 8 o'clock a.m. 9½ o'clock a.m.  
 11½ o'clock a.m. 12 1-4 o'clock p.m.  
 4 o'clock p.m. 5½ o'clock p.m.  
 On Sunday.  
 8 o'clock a.m. 9½ o'clock a.m.  
 4 o'clock p.m. 5½ o'clock p.m.  
 Office 75 Courtlandt St.





**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Bal-

timore every morning at 7½ and Camberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Camberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Browns-ville and Pittsburg. Time of arrival at both Camberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburg \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburg \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13½

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and after Monday, September 30th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad 84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road 32 "

From Bellefontaine to Sandusky city by railroad 102 "

Fares—From Cincinnati to Lebanon \$1 00

" " " " Xenia 1 50

" " " " Springfield 2 00

" " " " Columbus 4 00

" " " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at a passage for every \$500 in value over that amount.

W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA RAILROAD.**

Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at 9 a.m. and 3½ p.m.  
Arrives at 9 a.m. and 6½ p.m.  
Leaves York at 5 a.m. and 3 p.m.  
Arrives at 12½ p.m. and 8 p.m.  
Leaves York for Columbia at 1½ p.m. and 8 a.m.  
Leaves Columbia for York at 8 a.m. and 2 p.m.

**FARE.**

Fare to York ..... \$1 50  
" Wrightsville ..... 2 00  
" Columbia ..... 2 12½  
Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg ..... \$9  
Or via Lancaster by railroad ..... 10  
Through tickets to Harrisburg or Gettysburg ..... 3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at 5½ p.m.  
Returning, leaves Owning's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 1y Ticket Office, 63 North St.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m. and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 1y

**CENTRAL AND MACON AND WESTERN RAILROADS, GA.**

These Roads with the Western and Atlantic Railroad

of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad ..... 190 Miles.

Macon to Atlanta—Macon and Western ..... 101

Atlanta to Oothcaloga—Western and Atlantic ..... 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope,

Butter, Cheese, Tobacco,

Leather, Hides, Cotton

Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings ..... \$0 50

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones ..... 0 50

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot ..... 0 20

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot ..... 0 20 pr. 100lbs. 35

Crockery, per cubic foot ..... 0 15 " 35

Molasses and Oil, per hhd., (smaller casks in proportion) 9 00 12 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each ..... 1 25 1 50

Ploughs, (small,) and Wheelbarrows ..... 0 80 1 05

Salt, per Liverpool Sack ..... 0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.**

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods ..... 13 cts. per cubic ft.

On brls. wet (except molasses and oil) ..... \$1 50 per barrel.

On brls. dry (except lime) ... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery ..... 40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons ..... \$5 00 per hhd.

On molasses and oil ..... \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

Gen'l. Supt. Transportation.

Gen'l. Supt. Transportation.

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# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50	and \$3 00
" " Reading,	58	2 25	and 1 90
" " Pottsville	34	1 40	and 1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

## Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R.

Leave Philadelphia at 3 1/2 p.m. } No line on Sun-

Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia &

Wilmington.—Philadelphia to Wilmington, 8 a.m.,

mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail.

Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2 p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

Eng'nr and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to DALTON, 100 MILES.

This Road in connection with

the South Carolina Railroad and

Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston

to Dalton (Cross Plains) in Murray county, Ga.—

33 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	71 miles.	408 miles.
1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
Cotton, per 100 lbs.....	0 45	0 70
Molasses, per hogshead.....	8 50	13 50
" " barrel.....	2 50	4 25
Salt per bushel.....	0 18	
Salt per Liverpool sack.....	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Supt. of Transportation.

Augusta, Ga., July 15, 1847.

44-17

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	0 32 1/2	1 54	1 05	0 81	0 86 1/2
and Knoxville & intermediate points.	0 29 1/2	1 54	1 10	0 76	
Between Augusta and Decatur and intermediate points.	0 34	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	0 31	1 70	1 30	0 80	
Between Charleston or Savannah and Decatur and intermediate points.	0 32 1/2	2 20	1 40	1 05	1 10
and Knoxville & intermediate points.	0 30	2 20	1 40	1 00	
and Chattanooga.				0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovel, Spades, Scythes, Similes' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs..  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs..  
Per 100 lbs. Cotton.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

## REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	30 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 103 Chestnut Street, Philadelphia.

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D. K. MINOR.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

103 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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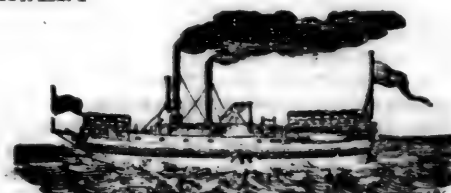


# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.

ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 49.]

SATURDAY, DECEMBER 4, 1847.

[WHOLE No. 598, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, December 4, 1847.

**RAILROAD IRON.—500 TONS OF THE** latest and most approved pattern of T Rail—weighing about 63 lbs. per yard, shipped from England in October, and shortly expected. For sale by **BOORMAN, JOHNSTON & CO.,** 340 119 Greenwich St., New York.

## A WORD WITH THE MANY.

In our last we had "a word" with a few of our friends, and we now wish to have a few words with the many who have remembered us in a business way, during the year, by which we have been able to sustain the Journal, and make it, in some measure, useful to the cause. For having been thus remembered—as well as for the many kind wishes expressed, and favors rendered—we shall endeavor, by devoting our best energies to the Journal, to make returns which will be more useful, and therefore more acceptable, than the expression of the grateful sense which we feel to all, but more especially to those who have stood by us through all the changes and reverses of the past fifteen years.

The Journal may be made far more useful than it has been—or is—if those gentlemen of the profession, and those connected with the great interests to which it is mainly devoted, will give to it occasionally the result of their experience, and observation; and to them we look, in more ways than one, for aid in sustaining and conducting it. Shall we be disappointed? or shall we find them ready with their pen, in contributing to its columns—and active with their influence in extending its circulation among those who may find it useful, and therefore ought to have it? These are the ways in which all can aid in

making it more useful to themselves, to the cause, and to us—and therefore we shall not be disappointed in our anticipations.

## A WORD TO ALL.

**For Missing Numbers.**—We again remind our subscribers that we shall cheerfully supply missing numbers for the current and past volumes—if we have them to spare—on receiving a list. It is much more easy to supply them now than at any future period.

If we have omitted to comply with any of the applications heretofore made for missing numbers, it has arisen from inability at the time—not from indisposition—it may therefore be worth the labor of furnishing a new list, as we have received many loose numbers of back volumes, from which they may possibly be supplied.

## Wilmington and Raleigh Railroad.

We find a notice of a meeting of the stockholders of this road, in the Wilmington Chronicle of 17th November. The principal business of the meeting was to elect directors and officers, as follows:

Alexander McRae, E. B. Dudley, P. R. Dickinson, Gilbert Potter, James T. Miller and Wm. A. Wright were elected directors, and Gen. Alexander McRae was re-elected president for the ensuing year.

The following resolution was also adopted, viz: **Resolved,** That the stockholders of the Wilmington and Raleigh railroad company, in general meeting assembled, do hereby pledge to the Wilmington and Manchester railroad company, a subscription of \$100,000 to be paid on the completion of said Wilmington and Manchester railroad, from the proceeds of sale of steamboats and other property, which will at that time become unnecessary for the purposes of this company: *Provided,* That our legislature take such action as to authorize such subscription.

This is well—and we trust that it will accelerate the movements upon the road to Manchester.

## Niagara Falls Suspension Bridge.

The suspension bridge companies have decided on the construction of the bridge for the passage of railroad trains. The strength of the supporting cables is to be not less than 6500 tons. The cost is not to exceed \$190,000; and the work to be completed by the 1st of May, 1849. Charles Ellet, Jr., Esq., of this city, has been appointed the engineer. The bridge will be in sight both of the cataract and the whirlpool, and span the gorge by an arch of 800 ft.—suspended 230 feet above the surface of the Niagara river.

## Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, November 25, 1847.

	Tons, cwt.
From Port Carbon.....	8,287 18
" Pottsville.....	3,521 08
" Schuylkill Haven.....	8,691 14
" Port Clinton.....	2,600 00
Total for week.....	23,101 00
Previously this year.....	1,233,466 17

Total.....1,256,567 17

HENRY M. WALKER,

Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending November 25, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	4,704 09
Schuylkill Haven.....	1,969 07
Port Clinton.....	00 00

This week.....6,673 16

Previously.....221,644 07

Total.....228,318 03

## Reading Railroad.

How few of those who are benefited by this noble work, are aware of its importance, and justly appreciate its agency for good. It is known, by many people, in various parts of the country, that there is a railroad extending from tide water on the Delaware, to the coal region in Schuylkill county—called the *Philadelphia, Reading and Pottsville railroad*—better known, however, as the "*Reading railroad*," from the circumstance that it was completed, and in operation, to the flourishing borough of Reading, for a considerable time before it was extended to the coal region.

This road, it is well known to many, was got up as a competitor, with the Schuylkill Navigation company, for the coal trade; it has therefore had, from its commencement, a powerful rival—and to fight its way into use and into favor against large odds—and not only so, but to contend, for a series of years, with still greater difficulties, in the general depression of business from 1837 to 1843, when it was first opened to the coal trade. A lack of capital, and a loss of credit, during the years 1840, '41 and '42, had the same withering influences upon its operations that are produced to individual enterprise by similar causes; and the wonder to us is—not that the company have done what they have—but that they have succeeded at all. There is, however,

one prominent reason that they have succeeded as they have done, under all their difficulties: and that is, in their looking forward to the ultimate certain success of the work, if it should be completed, regardless, almost, of the present outlay, upon a scale of sufficient magnitude.

With this distinct object in view, the company has gone on, regardless of the constant attacks upon its management, until it is now able to bring down, this year, about 1,400,000 tons of coal, which will produce a gross income of near two millions of dollars, besides the receipts for ordinary freight and passengers—which will not be much less than \$400,000—for the current year.

By this determined perseverance, the company has been able to put, and keep, the road in condition to perform more service than any other railroad in use, either in this country or in Europe; and, at the same time, by the amount of coal it brings to market it effects a saving to the consumers of that indispensable article, of at least one dollar on each ton of coal consumed east of the Allegheny mountains—or at least \$3,500,000 per annum! Such are the effects, and the benefits, of the "Reading railroad," within five years of its extension to the coal region; when it has only two cars, and seventy-five locomotives and five thousand tracks! Who will estimate its benefits, when its capacity and ability shall have been doubled, as must be the case within the next few years, when it will be required to bring double the amount of coal and other freight that it now does to tide water? There are few, not familiar with the details of such matters, who can form a correct estimate of the extent of its operations.

The cost of its locomotives alone exceeds \$550,000! and its cars, over \$1,200,000! and its depots, engine houses and machine shops, cannot fall much short of \$1,500,000 more, making an outlay of about three millions two hundred and fifty thousand dollars, for depots and machinery alone, after the immense outlay for the road itself!!!

We were forcibly impressed, when recently on a visit to the coal region, with the correctness of the views of the managers of the road, in thus providing for a large and rapidly increasing business. In rambling about for the purpose of ascertaining what had been done by the two rival companies, at what may be termed the "head of navigation"—but not at the head of "locomotion"—we came across, at "Port Carbon," an engine house, with an immense turntable, and "stalls" for twenty-one locomotives under one roof; and immediately adjoining is to be a shop for temporary repairs of locomotives and cars. This establishment is near the junction of the Schuylkill valley and Mill Creek railroads, at Port Carbon, and therefore in the midst of that portion of the coal region. That part of the road between "Mount Carbon"—the termination of the Reading railroad proper—and "Port Carbon," winds along, at the base of the mountain, and above the canal, with a rapid descent from the latter; and the scenery, when enlivened by the music of the locomotive, followed by a long train of cars, descending those heavy grades at a rapid rate, is peculiarly beautiful and interesting.

The branch roads, or rather the distinct roads, diverging from the "Reading," and extending into the different coal regions in different directions, are, in the aggregate, nearly equal in extent to the main line, and they will, in a few years, be much greater.

The principal of these branches is the Minehill and Schuylkill Haven road, 11½ miles, and its several branches of 15½ miles, making 27½ miles terminating at Schuylkill Haven, over which has been

transported this year 500,000 tons of coal, mainly by horse power, as locomotives were only introduced upon it in August last. The grades upon this road are such that the empty cars returning are about equal to loaded cars descending.

The Minehill coal sustains a very good reputation with consumers, and the extent of the veins and the facilities for mining it, are said to be at least equal to any part of the Schuylkill region now worked, consequently there are several villages springing rapidly into existence, the principal of which is Minerville, which has an industrious and enterprising population of about twelve hundred, with several stores and mechanics' shops, to supply their wants. The principal, or most extensive shops, are those of the Messrs. De Haven, who commenced, a few years since, in a small blacksmith shop—but have now a foundry, with extensive shops for building steam engines, and other machinery required in the coal region; and they have recently, we are informed, commenced the manufacture of locomotive engines.—Thus we see how rapid is the progress, and wide the extension of business in this country, in consequence of the introduction of railroads.

The amount of tonnage upon the Reading railroad will be, this year, probably five hundred thousand tons greater than on any other railroad in the world: and the annual increase upon it hereafter will be greater than upon any other road, for the reason that the increased demand for coal, together with the increase of other business attendant upon the coal trade, and the opening of a road from Pottsville through to the valley of the Susquehanna, will ensure to it a business not only unequalled, but unapproachable by any other railroad now in use; and the time will come when those who projected, commenced and carried this work through its difficulties, will be considered as public benefactors, notwithstanding the prejudice of those who could not appreciate its usefulness, nor foresee its wonderful influences.

#### Postoffice Department and the Railroads.

We called the attention of our readers, in a recent number of the Journal, to the controversy between the postoffice department and the Richmond, Fredericksburg and Potomac railroad, and steamboat company, in relation to the transportation of the mail between Washington and Richmond. We then gave the resolutions of the company, assigning their reasons for declining to accede to the offer of the department. Since that publication, we have received a copy of the correspondence between the department and the railroad company, commencing March 30, 1847, and continued at intervals up to November 23.

The correspondence discusses the laws of 1838, 1839 and 1845, in relation to mail transportation on railroads. The postmaster general fixing his rates per mile, of \$237 50, for first class routes by section 2d of the act of July, 1838, in which says:

"And be it further enacted, That each and every railroad within the limits of the United States, which now is, or hereafter may be completed, shall be a post route, and the postmaster general shall cause the mail to be transported thereon, provided he can have it done on reasonable terms, and not paying therefor, in any instance, more than twenty-five per centum over and above which similar transportation would cost in post coaches."

In one of his letters, the postmaster general says, in speaking of this section—

"What was meant by the cost of 'similar transportation' in coaches? Did it mean the cost of service on the coach routes over the roads then superseded by railroads, or in the same section of the Union, or in the United States? Was the size of mails and the speed with which they were carried,

to be taken into the estimate? The cost of coach service in different sections of the Union varied from \$190 per mile per annum to \$40, depending on the size of the mails and the speed with which they were taken."

"The department finally settled upon and adopted the highest coach service in the United States, paying 25 per cent. thereon, as the maximum for daily service on the railroads. That service was on the road from Wheeling to Cumberland, over the mountains, costing \$190 per mile per annum, and 25 per cent. added to that, made the sum of \$237 50 per mile per annum."

We should naturally suppose that reference was had, in the words "similar transportation," to the route to be superseded by the railroad.

In the act of 25th January, 1839, is the following,

"Be it enacted, etc., That the postmaster general shall not, by virtue of the authority vested in him by the 2d section of the act, entitled 'An act to establish certain post routes and discontinue others,' approved 7th July, 1838, allow more than \$300 per mile per annum to any railroad company in the United States for the conveyance of one or more daily mails upon their road. Provided, that nothing in this act contained shall be construed as in any way to remove or impair the limitations upon the power of the postmaster general imposed by that section."

From this section it appears that, under certain circumstances, the department is allowed to pay, not to exceed, \$300 a mile for one or more daily mails upon railroads, from which it will be seen that the amount of \$237 50 per mile, fixed by the department, is one of its own decisions, rather than a rate fixed by law.

The P. M. Gen. does not appear to estimate very highly the advantages of speed and certainty in the transportation and arrival of the mail, though he says it is better for mail transportation than any other; but places a high value on the concessions of congress to railroad companies, in the remission of duties on railroad iron, as will be seen by the following extract from one of his letters. He says—

"The adjustment of the compensation to railroad companies has always been attended with trouble, owing mainly to the nature of the service; better for mail transportation than any other, and of a character not to admit of much competition. The advance by the government to them of more than six millions of dollars, by the remission of duties on railroad iron, the public convenience, or any other consideration, could prevent them from exacting from the postoffice department such extravagant prices, that congress was compelled to interfere, and in the 3d section of the act of the 7th July, 1838, the postmaster general was prohibited from paying them more than 25 per cent. over and above what similar transportation would cost in post coaches."

It will hardly be denied, we think, by any intelligent person, that the remission of duties on railroad iron was one of the best investments the government ever made; and the following extract from the report of Mr. Spencer, secretary of war, of December, 1841, shows that it has been so estimated by able men connected with the government, whatever may be the opinion of Mr. Johnson. The report says:

"In every point of view in which these works can be considered, their cost is so much actually added to the defensive means of the nation without any expense to the general government, other than the subscriptions it has authorized to a few of them; and it may be affirmed without exaggeration that the aggregate in saving in any future war in which we may be engaged, in the comparatively small amount of military force that will be necessary for defence, and in the cheapness of transportation afforded by railroads and canals now in existence, will be equal to their cost of construction."

If this is not good evidence that the government is, and will be, fully compensated for all it has done in aid of internal improvements, we will add our own to it, and say that it is our candid opinion that the government would have made a good investment



If it had aided the railroad interest to the amount of one hundred, instead of six, millions of dollars.

It appears from the letter of the postmaster general, dated June 24th, 1847, that he thinks his predecessor exceeded "the maximum of the law" in some of his contracts—as he says:

"When I came into the department I found the service adjusted in them by my predecessor, and good faith in the department to the contractors required payments to be made upon the terms settled by him—hence payments have been made in the different sections, and will so continue to be made, whether contracts are executed or not, until the close of the contract term. Then it becomes my duty to re-adjust the service, within the maximum of the law.

"The contracts on the road between this and New York will yet continue a year, and the service will be then re-adjusted; until then it will continue as regulated by my predecessor."

We may therefore conclude that there is to be a general cutting down of the rates on other lines as their contracts expire.

Possibly this may be good policy, and it may contribute to the convenience of the people, and the prosperity of the department, but we think very differently.

We hold that the laborer is worthy of his hire, and that increased speed and increased labor in the transportation of the mail, are entitled to an increased compensation.

The service which A. rendered at four miles an hour, ought not to be required of B., who has expended a million of dollars to attain a speed of sixteen or twenty miles an hour, and certainly, under all circumstances, at the same, or a comparatively small increased, compensation. If speed and certainty are of value to the business community, and to the government, that community and government ought to be willing to pay a fair price to enterprize for it, and not allow their agent to sacrifice the general interest to carry out his arbitrary rules, and to gratify his personal feelings.

Speed, certainty and regularity, are all-important in a business community—and there is no means now in operation by which the business community can be as well served as by railroads—and these railroads have cost immense amounts of capital—therefore those who use them must, of course, contribute a fair return to their support; and who so well able as the government—which derives a benefit in its military operations alone, "equal to their cost of construction," to say nothing of its mail service performed at three, four and five times the speed, and much greater certainly, at only 25 per cent. increased cost?

We again repeat that compensation for mail service should be in proportion to its speed and certainty. The department used to pay more for six, than for four miles an hour, and still more for ten than for six miles—so of course should it pay more for twenty miles than for ten—and still more for thirty or thirty-five miles than for twenty, or there will be no inducement for incurring additional expense to increase the speed on the main lines.

This is not a question between the department and the Richmond, Fredericksburg and Potomac railroad and steamboat company—but between the postoffice department and the railroad interest generally—while the people, the business community, are to be the sufferers: therefore, it is important that the whole subject should be referred, at an early day, to congress, for its consideration and regulation, that the mail service may be properly performed, the business community faithfully served, and those who, by a large expenditure of capital and constant vigilance, perform the service fairly paid.

#### Correction of Railroad Table.

*South Carolina Railroad and its Branches.*

*g* The Main road, from Charleston to Hamburg, has what is termed a flange rail—the flange turning down on the inside of the longitudinal wooden rail—weight, that first used, 25½ pounds per yard, but the new rail, of the same form, weighs about 40 lbs.

*i* A single track, five feet gauge.

*j* One inclined plane.

*k* Highest grade 25 feet.

*m* Fare, 5 cents per mile.

*n* They commute both with families and individuals.

The Columbia branch was opened 17 miles in 1840, and the entire line in 1842, and is 67 miles long.

*g* Has the H rail, 57 lbs. per yard.

*i* Single track, five feet gauge.

*k* Highest grade, 39-6 feet.

*l* Least radius, 2865 feet, except one at the junction.

*m* Fare, 5 cents per mile.

*n* Commutation as on the main line.

The Camden branch is now under construction, commencing at or near the point, we believe where the Columbia branch crosses the Congaree river, and extends to Camden, 37 miles.

*g* The  $\Pi$  or bridge rail, weighing 45½ lbs., and the H rail, weighing 51 lbs. per yard, are to be used.

*i* Single track of 5 feet gauge.

*k* Highest grade, 24-4 feet.

*l* Least radius, 2865 feet, except at junction, and the fair and regulations will probably be the same as on the main line and Columbia branch.

The total amount of stock and debts was, in 1845, \$5,671,452, for the main line and Columbia branch, making together just 200 miles. The Camden branch is not yet completed, and its cost is not included in the above.

The inclined plain at Aiken is half a mile long, and rises 176 feet.

In 1845 the total receipts were.....\$558,698

And the ordinary expenses.....\$281,902

Interest on funded debt.....116,395

Dividends, 5½ per cent.....147,900

Surplus.....12,501

In 1846 the total receipts were.....\$589,061

And the ordinary expenses.....\$309,641

Interest on funded debt.....108,530

Dividends, 5½ per cent.....140,725

Surplus.....30,185

#### Iron Trade.

We learn from the Mining Journal of October 23d, that rails were quoted at £8 10s. a £8 15s. average.

A correspondent of the Mining Journal says that, "This has been another dull week in metals, no sales of any consequence having been made. IRON—Welsh bars are a shade lower; a small parcel of Swedes has been sold at £11, ex-ship. COPPER is steady; some of the Chillian ingots have moved off at £90, but 900 tons are still on the market. TIN—English and foreign very dull of sale; the few orders on hand are withheld in expectation of lower prices. SPelter is a shade lower than last week; the dealers are sellers at £18, and about 90 tons in second hands were sold on Wednesday at £17 17s.

GLASGOW PIG-IRON TRADE, OCT. 20.—Our pig-iron market is exceedingly dull this week: there is so little disposition shown to buy, that holders have been obliged still further to reduce their prices. The price of mixed Nos. may to-day be quoted at 57s. 6d.—cash.

BIRMINGHAM, THURSDAY.—There is no change to report this week. Stocks are low; the trade is still unaffected by the crisis, and were it not for the high rate of discount, the great premium which cash demands, and the little extra credit which, in some instances, is taken, the pressure would not be felt. The state of things, the Times would induce its readers to believe, is owing solely to the demand for iron for railway purposes; but, in fact, the makers of iron, in this district, for railway purposes are comparatively few. The generality of the iron-works are principally engaged in making other sorts of iron, for which there is a good and legitimate demand, both at home and on the continent. It is, therefore, not entirely owing to the demand for railway purposes that the iron-works are flourishing, while others are decaying.—*Birmingham Advertiser.*

ROAD MAKING. OR A MANUAL OF THE PRINCIPLES AND PRACTICE OF ROAD MAKING; Comprising the Location, Construction and Improvement of Roads, —Common Macadam, Paved, Plank, and Railroads. By WM. GILLESPIE, A. M., C. E., Professor of Civil Engineering in Union College.

"The roads of a country are," as the author justly observes, "accurate and certain tests of the degree of its civilization," and it may well be remarked that the location of the early roads of most new countries, are as often the result of accident as of design.

The same class of engineers that located some of the most important streets in the city of New York, have continued their labors throughout the country, since the early history of that famous city; and we sometimes find, in our rambles in the interior, in the location of town roads, a verification of a not uncommon expression, that "the farthest way round is the nearest way home." It is true, as a neighborhood, or country, advances in population, wealth and intelligence, the roads are improved by new locations, by filling up hollows, cutting down hills, and by going round, instead of over, the hills. Yet there is, in the general management of our country roads, less of judgment, industry and integrity than in any other of the pursuits of life. It is by some considered a duty—but more look upon it as a burden—as just so much time thrown away and lost, while another—and not a small—class consider it a good frolic, as there is usually quite a collection of persons who are under little or no restraint, and thus it is that the "high way tax," paid in labor gives less return to those who pay it, than any other tax paid by the people.

The views of the author upon this subject are sound and practical, and should be read by the people throughout the entire length and breadth of the land—as they are so truthful that good results would surely follow—and that we may do our part in disseminating them, we publish the chapter, upon "THE MANAGEMENT OF TOWN ROADS," entire, and suggest to those editors with whom we exchange, and to others also, to give it an insertion, or, at least, to call attention to it. We also recommend this manual to the perusal of every tax-payer for road making, and to the young men of the country, as they will find useful information in relation to each department of road-making, which will surely be useful to them in after life. It is published by A. S. Barnes & Co., 51 John street, New York, in an octavo volume of 336 pages, with illustrations of the various subjects treated of—and may, probably be had of the principal booksellers throughout the country, at least, we presume, than half its value, though we are not informed as to the retail price.

## THE MANAGEMENT OF TOWN ROADS.

"The money levied is more than double of what is necessary for executing in the completest manner the work, which is often executed in a very slovenly manner, and sometimes not executed at all."—ADAM SMITH.

A wise and well regulated system of managing the repairs of roads, and of obtaining the greatest degree of improvement with the least amount of labor, is as important as their judicious construction. The "Road tax" system, of personal service and commutation, though nearly universal among us, is unsound in its principle, unjust in its operation, wasteful in its practice, and unsatisfactory in its results. Borrowed from the "statute-labor" of England, and the "Corvée" or "Prestation en nature" of France, like them it is a remnant of the times of feudal vassalage, when one of the tenures by which land was held, was the obligation to make the roads passable for the troops of the lord of the manor. The evil consequences of the system will be examined, when we have briefly explained its organization in the state of New York, where it has been rendered as perfect as its nature permits.\*

The directing power is vested in "Commissioners of Highways," who are chosen in each town at the annual town meeting, and have "the care and superintendence of the highways and bridges therein." Subordinate to them are "Overseers," of whom are chosen, at the annual town-meeting, as many as there are road districts in the town. The commissioners have the authority to direct the overseers as to the grade of the road, how it should be shaped and drained, and the like. They may also lay out new roads. The principal duties of the overseers are to summon the persons subject to perform labor on the roads, to see that they actually work, and to collect fines and commutation money. The commissioners are to estimate the cost of improvements necessary on the roads and bridges of the town, and the board of supervisors are to cause the amount to be levied, but within the limit, for any one year, of two hundred and fifty dollars. But, if a legal town meeting so vote, the supervisors may levy "a sum of money, in addition to the sum now allowed by law, not exceeding five hundred dollars in any one year."

"Every person owning or occupying land in the town in which he or she resides, and every male inhabitant above the age of twenty-one years, residing in the town where the assessment is made, shall be assessed to work on the public highways in such town." The lands of non-residents are also to be assessed. The whole number of days' work to be assessed shall be at least three times the number of taxable inhabitants in such town; and may be as many as the commissioners shall think proper.

Persons assessed to work on the highways, upon receiving twenty-four hours' notice from the overseers, must appear either in person, or by able-bodied substitutes; or pay a sum of one dollar for each day's neglect,

unless they shall have previously commuted at the rate of sixty-two and a half cents per day. A team, cart, wagon, or plough, with a pair of horses or oxen, and a man to manage them, satisfies an assessment of three days.

Such are the principal features of the present system. They are all defective in a greater or less degree.

In the first place, the condition of the roads, which is so important an element of the wealth and comfort of the whole community, should not be allowed to remain at the mercy of the indolence, or false economy, of the various small townships through which the roads pass. In one town, its public spirit, wealth, and pride, may induce it to make a good road; in the adjoining town, a shortsighted policy, looking only to private interest in its narrowest sense, may have led the inhabitants to work upon the roads barely enough to put them into such a condition as will allow a wagon to be slowly drawn over them.

In the next place, the "commissioners" who have the primitive direction of the improvements and repairs, should be liberally compensated for the time and attention which they give to the work. Gratuitous services are seldom efficient; at best they are temporary and local, and dependent on the whims, continued residence, and life of the party; and if the compensation be sufficient, the same evils exist though in a less degree. Skill, labor, and time cannot be obtained and secured without being adequately paid for.

The third defect in the system is the annual election of the commissioners and overseers. When men of suitable ability, knowledge, and experience have been once obtained, they should be permanently continued in office. On the present system of annual rotation, as soon as the overseer has learned something in his year's apprenticeship, his experience is lost, and another takes his place, and begins in his turn to take lessons in repairing roads at the expense of their condition. In other occupations, an apprenticeship of some years is thought necessary before a person is considered as qualified to practice with his own capital; while a road overseer, the moment that he is chosen, is thought fit to direct a work requiring much science, at the expense of the town's capital of time, labor, and money.

In the fourth place, the fundamental principle of the road-tax is a false one. Its temporary custom of requiring rents to be paid in kind, has long since been found to be less easy and equitable than money rents. Just as work paid for by the piece is preferable in every respect to compulsory labor by the day. Men are now taken from their peculiar occupations in which they are skillful, and transferred to one of which they know nothing. A good ploughman does not think himself necessarily competent to forge the coulter of his plough, or put together its woodwork. He knows that it is truer economy for him to pay a mechanic for his services. But the laws assume him to be a skillful road-maker—a more difficult art than

plough-making—and compel him to act as one; though his clumsiness in repairing his plough would injure only himself, while his road blunders are injurious to the whole community. Skill in any art is only to be acquired by practical and successful experience, aided by the instructions of those who already possess it. An artisan cannot be extemporized.

Fifthly, labor by the day is always less profitable than that done by the piece, in which each man's skill and industry receive proportionate rewards. Working on the roads is generally made a half holiday by those who assemble at the summons of the overseer. Few of the men or horses do half a day's work, the remainder of their time being lost in idleness, and perhaps half of even the actual working time being wasted by its misdirection.

Lastly, it follows from the preceding, that the commutation system operates very unfairly and severely upon those who commute; for they pay the price of a full day's work, and their tax is therefore doubled.

Such are the principal defects of the present system of managing the labor expended on town roads. But it is much easier to discover and to expose, than to remove them. In the following plan the writer has endeavored to combine the most valuable features of the various European systems, and to adapt them to our peculiar institutions.

In each state, a general legislative act should establish all the details of construction, and determine definitely "What a road ought to be," in accordance with the theory and practice of the best engineers. Surveys should be made of all the leading roads, and plans and profiles of them prepared, so that it might be at once seen in what way their lines could be most efficiently and cheaply improved.

The personal labor and commutation system should be entirely abolished. If the town-meeting would vote a tax in money of half the amount now levied in days' work, its expenditure under the supervision to be presently described, would produce a result superior to the present one. When the road is a great thoroughfare, extending far beyond the town, it would be unjust to levy upon it all the expense; and a county tax, or, in extreme cases, a state appropriation, should supply what might be necessary.

In regulating the expenditure of the money raised, the fundamental principle, dictated by the truest and most far-sighted economy, should be to sacrifice a portion of the resources of the road to ensure the good employment of the remainder. The justice of this principle needs no argument; its best mode of application is the only difficulty. The first step should be to place the repairs of the roads under the charge of a professional road maker of science and experience. On his skill will depend the condition of the roads, more than on local circumstances or expenditures. His qualifications should be tested by a competent board of examiners, if he should not have received special instructions in the requisite knowledge, such as might well form a peculiar department of education in our Colleges

\* A convenient edition of the revised road act, with commentaries, etc., was published at Rochester in 1815.



and Normal schools. As each town by itself could not afford to employ a competent person, a number of them (more or less according to their wealth and the importance of the roads within their bounds) should unite in an association for that purpose.

The engineer thus appointed should choose, in each township, an active, industrious man, of ordinary education, to act as his deputy in making the expenditures in that town, and as foreman of the laborers employed during the season of active labor on the roads. This deputy might be busily and profitably employed during the entire remainder of the year, in constantly passing over in due rotation the whole line of road under his care, and making, himself, the slight repairs which the continual wear and tear of the traffic would render necessary. If taken in time, he himself could perform them; but if left unattended to, as is usual, till the season of general repairs, the deterioration would increase in a geometrical ratio, and perhaps cause an accident to a traveller, which would subject the town to damages tenfold the cost of repairs.

The laborers hired by the deputy in each town should be employed by piece-work as far as is possible. This can be carried out to a great extent, when the superintendent is competent to measure accurately the various descriptions of work, and to estimate their comparative difficulty. When the work cannot be properly executed by portions allotted to one man, it may be taken by gangs of four or five, who should form their own associations, make a common bargain, and divide the pay. In work not susceptible of definite calculation as to quantity or quality, and in such only, day labor may be resorted to under a continual and vigilant superintendence.

In such a system as has been here sketched, the money-tax would be found to be not only more equitable than the personal-labor system, but even less burdensome. None of it would be wasted; and those who had skill and strength for road work would receive back, in wages, more than their share of it; those who were skilful in other work might remain at that which was most profitable to them, and pay only their simple share of the road-tax, not double, as when they now commute; and the only losers by the change would be the indolent, who were useless under the old system, but under this, would be obliged to contribute their share; while great gain in every way would ensue to the community at large. The subject urgently demands legislative attention.

#### The Vacuum Engine.

Having, in the *Mining Journal* of the 18th Sept., given a concise description of the system of pneumatic propulsion, as patented by Messrs. CUNNINGHAM and CARTER, and having heard considerable objections started to the vacuum engines, which form the basis of their plan, we now offer a few remarks thereon, hoping thereby to call the attention of others to their merits much better qualified than ourselves to appreciate and describe them. Our readers will remember that the pneumatic railway consists of a close tube

the entire length of the line, without any continuous valve, or opening, of any description, excepting at the side valves, in connection with the vacuum engines, placed at every 300 feet. The engine, itself, consists of merely a cylinder and piston, with double slide valves—the atmosphere thus alternately pressing on either side of the piston, when the communication with the exhaust tube is open, precisely similar to the action of steam in a high-pressure steam-engine. Now, in the high-pressure engine, the induction openings are so small, in proportion to the area of the piston, that the steam is actually wire-drawn, and then cut off at, perhaps, half the stroke, for the purpose of economising fuel, and taking advantage of the property of the expansibility of steam—and thus the power is admitted, but gradually, compared with what it would be, if the induction valves were (say) of four times the area. Now, in these vacuum engines, the element employed being inexhaustible, and supplied by nature without cost, the areas of the openings for the action of the atmosphere on the piston, when the connection with the exhaust tube is open, are made as large as consistently proportionate with the area of the piston itself. The consequence is, that, instead of the atmosphere creeping through a small opening, and acting only by degrees on a large surface, the whole pressure, according to the state of the vacuum, is admitted with a sudden impulse, and thus adds considerably to the calculated power obtained. One great, and we believe the principal, objection made to the system, has been, "that no piston rods and cranks, however strong in proportion to the size of the cylinder, can withstand the sudden shock of a removal from their *vis inertia*, or state of rest, to that of rapid motion, by a train going at a rate of 30, 40, or even 60 miles per hour." Now, this would be a very valid objection, were the wheels connected by cogs, or was the machinery in any degree of a complex nature; but, in this case, the rails of the carriages being wedged close between the revolving wheels, with plane peripheries, and these being on the crank shaft, and thus the whole bound firmly together; while on one hand, the instant the connection with the tube is open, the crank is certainly suddenly set in motion with great rapidity—on the other, the train itself acts almost in the capacity of a fly-wheel, and keeps the moving power itself properly regulated: in addition to which, it must be remembered, that there is no enormous weight, such as a train of 90 or 100 tons to set in motion; the only bodies to start from their *vis inertia*, being the three horizontal wheels and the piston, and these are gradually brought into action by the peculiar form and position of the guide rails. The model, at all events, works well, creates much interest, and gives great satisfaction to numerous scientific men, who witness its performance; yet it would be highly satisfactory to all parties, and at once solve the problem of its capabilities, if about a mile of a railway could be obtained, where the principle could be fully tried. Although

the nature of the vacuum engine is, of course, well known; we are satisfied, from its never having been brought into any general use, that its powers and capabilities, as applicable to railway purposes, in all their important bearings, and as a peculiarly powerful auxiliary for safe and certain operations at stations, have yet received but little investigation.

#### SULPHURIC ETHER,

*In connection with steam as a motive power.*

A patent has been recently enrolled by Mr. Newton, of Chancery lane, for the employment of the elastic vapor of sulphuric ether as a motive power, not absolutely instead of steam, but in connection with it; the caloric from the steam, after it has done its duty, being sufficient to vaporize the ether. The principles of action are, the passing of the steam, after it has exerted its force upon the piston of a steam engine of the usual construction, not into the condenser, as in condensing engines, or into the atmosphere, as in high pressure engines, but into a certain apparatus, which the inventor terms a 'generator,' or 'vaporizer.' The steam is, immediately upon its introduction into the generator, condensed, by contact with the surface of the apparatus, while the heat absorbed from the steam, during condensation converts into vapor the sulphuric ether, or other highly volatile fluid, which may be used under this patent; the quantity, and, consequently, the power obtained, being in proportion to the amount of caloric in the steam. This vapor is then employed in the propulsion of a piston within a cylinder, similar to a common steam engine, and acting in unison with the steam cylinder—the piston being connected by the usual method of piston rod, connecting rod, and crank to the same shaft to which the steam piston is attached. The elastic vapor, after having exerted its force upon the piston, is conveyed away by proper pipes to a vapor condenser, where it is condensed into fluid by simple contact with cooled metallic surfaces, which are constantly kept at a temperature sufficiently low to effect the condensation of the vapor, immediately on its coming in contact with them. The condenser is kept cool by a stream of cold water, or a current of cold air. The condensed fluid, undischarged vapor, and what atmospheric air may have entered, is withdrawn out by air pumps, in the usual manner, and deposited in a receiver, provided with a means of expelling and discharging all vapors which may have accumulated, and the lower part of which is connected with the vaporizer, by which it may be supplied with sulphuric ether, or other volatile fluid. The water produced in the vaporizer, from the condensation of the steam, is drawn off by a pump, and discharged into the steam boiler. The mode of making the stuffing boxes air tight for the etheric vapor is by means of water pressure exerting its force through the medium of leather, and acting in opposition to the pressure of the vapor and preventing its escape. The invention can be applied to any description of engine—stationary, marine or locomotive. —*London Mining Journal.*

**Gauge, or Width of Track for Railroads.**  
*Report on the Gauge for the St. Lawrence & Atlantic Railroad.* By A. C. Morton, Esq., Chief Engineer.

Continued from page 761.

This would not be the result were the engines on that road more powerful. Trains propelled by two or more engines are of necessity delayed at all the wood and water stations, or where cars are to be taken and left on side tracks.

Attaching a number of engines to one train operated most unfavorably, from the unequal manner in which the separate engines act, and the increased liability to accident. It also adds very materially to the cost of transportation.

Mr. J. McConnell, superintendent of the locomotive department of the Birmingham and Gloucester railway, a narrow gauge advocate, states in his testimony before the gauge commissioners that, "We find from experience that economy of working is very much assisted by taking the trains by one heavy engine, instead of two light ones, that is to say, you save the wages of two men, and I think the expense of repairs is very much reduced, and materials, for instance, oil, tallow, etc., and the consumption of coke in the one engine is not at all equal to the consumption of the two, which only do the same amount of work."

Mr. Wm. Cubitt, a distinguished civil engineer, states in his testimony before the same commissioners, that "Large and powerful engines are more cheaply worked in proportion than smaller ones for the work they do," and adds, in relation to the consumption of coke, etc., "that they are cheaper altogether. With regard to manual attention, and all that, it takes the same expense to work a small engine as it does a large one, and they can be more economical in coke, with reference to the work they can do. The same quantity of repairs will cover more work."

The first cost of large engines is cheaper in proportion to their power than small ones.

The history of every species of transportation affords evidence of the advantage and economy of carrying large loads. Canals and railroads were introduced on account of the facilities they afforded for moving large loads, thereby lessening the cost of transportation.

The enlargement of the canals of New York, Pennsylvania and Canada, was made for the purpose of increasing the tonnage of vessels, as a means of lessening the cost of transportation.

By enlarging the Erie canal from its original dimensions to 7 feet deep and 70 feet wide, it was estimated that the cost of transportation would be reduced 50 per cent.

It is ascertained from experience that increasing the tonnage of boats on the Delaware and Hudson canal from 31 to 45 tons, reduced the cost of transportation 33 per cent., and the saving this made on the business of the canal for two years reimbursed the cost of its enlargement. By the application of steam to vessels for navigating lakes and rivers and also large canals, a larger class of

vessels have been introduced, carrying greatly increased loads, and the effect has been a great reduction in the cost of transportation.

These various modes of transportation alluded to, show the efforts that are making to provide more efficient means for the vastly increasing business of the country, and the advantages which will accrue from increased facilities and ability to move larger loads. If we refer to the history of railroads, it will be observed that from the time at which they were in the most rude state up to the present day, there has been a constant effort to gain an increase of power.

It was not till 1829 that any very great improvement of the locomotive engine was accomplished; and from the opening of the Liverpool and Manchester railroad in 1830 we may date the introduction of locomotive engines generally on railways in preference to any other power. From that day to the present there have been constant changes and improvements going on in the character of engines and the railways upon which they were to operate.

I need scarcely allude to the vast improvements which have been made within a comparatively short space of time, for every person is familiar with the subject.

When it is recollected, however, that in 1829 it was considered a great feat for a locomotive to draw 12 to 15 tons 70 miles at the rate of 14 miles per hour, it certainly must excite feelings of the utmost admiration that in 1846 a locomotive engine on the broad gauge was able to draw over 100 tons, a distance of 116 miles at an average velocity of 49 miles per hour, running 10 miles of this distance at the rate of 66 miles per hour, and two miles at a speed of over 69 miles per hour.

These are results that have been obtained in England by the adoption of the broad gauge, which has been in use comparatively but a short time. The narrow gauge having been adopted on the first introduction of railways, improvements have from time to time been made in the engines of this width till finally, as the commissioners state, no further addition to their power can well be made, yet their best performances fall far short of the results above stated. What results may we not expect when the same efforts shall have been made to develop the power of the broad gauge engines?

Large and powerful engines have been objected to on account of the injury which they cause to the road. With heavy engines it is of course necessary to construct a more perfect road and to either increase the weight of the rail or the number of bearing points of the engine. The plan of track adopted for your road contemplates the use of the heaviest class of engines. The rail is of an approved pattern both for strength and durability, and with the continuous support given by the sills it is equal to a rail of 80 or 90 lbs per yard on cross sleepers as they are usually laid.

It is urged as an objection to the broad gauge that the resistance is greatly increased in passing round curves in consequence of

the greater length of the outer rail and the slipping of the wheels in passing over this increased distance.

No difficulty has been experienced in passing around curves of small radius at great velocity even with a gauge of 7 feet, and with a gauge of 5½ feet the width bears so small a proportion to the radius of the curve that there would be no difficulty in this respect, and but a small increase of slipping would result from the excess of width over the narrow gauge were there no provisions to lessen its effects.

Improvements have been made both on locomotive engines and cars which lessen the resistance on curves, and this undoubtedly will be still further reduced by improvements which are constantly making in railroad machinery.

As cars were formerly constructed, the axles being placed at a greater distance from each other, the friction was greater. In the United States, four wheeled cars have mostly gone out of use, and those having two pairs of wheels at each end of the car have been adopted, the axles of which are placed nearer together, which obviates in a great degree this difficulty.

On your road, as well as other great lines in Canada, the character of the country is such as to require comparatively but a small amount of curvature, and this increased width of track will not be attended by any material loss of power or inconvenience in this respect.

The increased cost of construction is another objection urged against a wider gauge to which much importance has been attached.

But on examination, this will be found of comparatively little importance, particularly with the gauge adopted for your road. The width of roadbed is not necessarily increased, although in the consideration of this subject it would be well to provide as much additional width as is given to the tracks.

Most of the narrow gauge roads in the United States are graded in the first instance for a single track, and the width of road bed on embankments varies, being on different roads from 12 to 15 feet. For double tracks it is generally from 24 to 26 feet.

Your road is being graded for a single track having a surface width of 15 feet with provision for a double track which is 26 feet.

The New York and Erie railroad which has a gauge of 6 feet is graded for a single track with a width of road bed on embankments of 15 feet, while many of the narrow gauge roads have the same width, and no inconvenience is experienced for want of more space in either case.

The London and Birmingham road in England and several narrow gauge roads in the United States have a width on embankments of 26 feet, and this is the width proposed for your road. It therefore appears that on many important roads of that gauge as great a difference exists in the width of road bed as would be the increase necessary for a gauge of 5½ feet.

The width from centre to centre of tracks will be determined by the width of cars from



out to out, and the space between cars when passing each other.

On most roads the space between tracks is 6 feet, and the width of cars has been increased to 9 feet 6 inches, and in some instances to 9 feet 8 inches.

The clear space between cars should not be less than 18 inches, and assuming the width of cars to be 9 feet 6 inches, the distance from centre to centre of tracks will be 11 feet.

Now, if we allow the space for both gauges to be 11 feet, add the width of track, and it gives for the narrow gauge 15 feet 8½ inches and for the 5½ feet track 16 feet 6 inches between outside rails, making a difference due to the latter gauge of 9½ inches.

But allowing 18 inches between cars, with the widest car that would ever be likely to be adopted on 5½ ft. gauge, the increased width of road bed would be only 2 feet. This extra width if strictly applied to all parts of the road would require an increase of 2 feet in the length of culverts, bridge, abutments, etc. This addition is of course to the body of those structures only, the wings, parapet walls, etc., remaining the same in either case.

These additions, were they really made, would on your road amount to but a trifling sum, as there are scarcely any deep rock cuttings, heavy excavations or embankments, and no tunnels. The mechanical structures are generally of a cheap character.

But it is not proposed to add to the dimensions; for the width which is adopted on narrow gauge roads has been found to answer every purpose for an increased width of track. The space left outside of the rails for your road, as now graded, will be nearly 5 feet; and this is deemed sufficient.

The bridges have, when the roadway is on the lower chords, a clear space between the trusses of 15 feet, yet on several narrow gauge roads the space is no less, while some have more than this.

Bridges designed for the road way on the top chords, (of which character are nearly all your more important structures) are not necessarily enlarged, for the trusses may be placed in such a position as will conduce both to economy and strength.

The trusses of this description of bridge in course of construction for your road are placed 12 feet apart for a single track, which, with the thickness of the trusses, gives a top width of from 16 to 18 feet, and when the third truss is added for a double track, it is placed at a distance of 9 feet, the masonry being designed for this in the first instance.

This effects a great saving, and the dimensions need not differ from the same kind of bridge designed for a narrow gauge road. Adopting the same kind of track which is proposed for your road, the difference in cost would be a mere trifle, or with a cross sleep or road, the increased cost would not exceed £8 per mile.

As it regards the cost of cars, I am able to state from the communications of builders on the subject, that the increased cost will be comparatively small, and will consist mainly

in the extra weight of the axles due to the greater width of track.

It is probable that with a 5 1-2 feet track, inside bearings for cars will be considered preferable, in which case the axles will be about three inches shorter than those at present in general use on the narrow gauge. Car builders state that the cost of cars of this description will be no more for the wide track than for the narrow. It is stated on roads where both inside and outside bearings have been extensively used, that the former are preferred, and that for cars to be constructed hereafter, no other will be used—that, with inside bearings, the cars are easier on the journals and the road, and are in every respect safer, that the journals are less liable to break, the cars move easier around curves and in case of breaking a wheel or axle, the effect is less disastrous to the train and the road. They are objected to on account of the greater trouble of oiling, and liability to get more dirt in them. The former is a comparatively small objection, and the latter, if it exists at all, may doubtlessly be removed.

The amount paid for the last passenger cars ordered for the Erie road, (having a gauge of 6 feet,) which seat 69 passengers, independent of the saloon, was no greater than the amount charged for cars of the same finish, seating the same number of passengers for the narrow gauge roads of the eastern States.

The cost of engines will be no more in proportion to their effective power for a wide gauge than for a narrow; and I was informed a short time since by a large manufacturer that he would make no difference in the cost between engines on the ordinary gauge, and those of 5 1-2 feet track.

The reasons assigned, are the greater conveniences and facilities for arranging economically the working parts for inside connections.

Allowing that the items of increased expense above referred to are incurred on your road, (which as before remarked will not be the case) the aggregate will not amount to 1½ per cent. on the total cost of the road.

It has been suggested that greater difficulties would be encountered in removing the snow on a wide track than on a narrow. The increased resistance from this cause, resulting from the difference between the narrow track and the gauge adopted for your road, will, I believe, be found very small and hardly worthy of notice.

It certainly will prove of little consequence compared with the increased power which this greater width gives to the engine. It is a strong argument in favor of a wide gauge that the engines may be constructed of greatly increased power, with a view to overcome more readily this difficulty.

As an evidence that the effect of widening the gauge, and increasing the power of the engine, is to lessen the difficulties of removing the snow, I would refer to the great storm of 1845, which obstructed nearly all the roads in the northern part of the United States.

The Erie road, with a gauge of 6 feet, lost but one trip, while the main lines (narrow

gauge) south of New York, were impassable for a number of days.

You are aware, however, from the favorable character of the country, a very large portion of your road will be on embankments elevated five or six feet above the general surface of the ground, which will much facilitate the removal of snow, allowing the winds to sweep more freely over its surface, and thus prevent any great accumulation on the track.

The most prominent objection which can be made to a wide track is, the connection with other roads of a different gauge, and the necessity of transferring freight and passengers from one line to another.

This, under certain circumstances, would evidently be so serious an objection as to overcome all considerations in its favor, and again, under other circumstances, it may be less objectionable than other difficulties.

As it regards the connection of your road with other lines, I know of only one which is now contemplated that would have any bearing on the subject of gauge.

As there are but 15 miles of road in operation in Canada, and only 8 more for which definite arrangements are made for the narrow gauge, the question of connection is not therefore necessarily involved in any difficulty here. From the position of Montreal, the great mass of freight would necessarily be transhipped here.

This at present is unavoidable. In the event of the construction of a bridge across the St. Lawrence, which is a work entirely practicable, and of great merit: and also the construction of a line of roads extending to the upper province, there would still be a transfer of a very large quantity of freight at Montreal, particularly during the season of navigation.

Should a bridge be constructed across the St. Lawrence river, there is no practical difficulty in carrying your road and the St. Johns road over on the same bridge on account of a difference of gauge, and further than this, there is no necessity for a connection.

And until other roads shall have been constructed above the Lachine road, there will be no reason for a connection with this line. The question of gauge, therefore, as far as concerns a connection with any other road in Canada yet constructed, is an open one, and is not embarrassed by existing lines.

There is a branch, however, contemplated by which it is proposed to connect your road with the Passumpsic and Connecticut River railroad, in the State of Vermont, which is intended to form part of a line to Boston.

This may be considered an important branch to your road—the peculiar features of which, and the nature of the business to be expected from it, we will proceed to consider.

The distance from Montreal to Boston, via the most direct lines now in connection with the Passumpsic road, is about 367 miles, and in this distance there are six different corporations. These roads will differ in length from 14 to 128 miles, and each of these, so far as completed, is operated by the company to whom it belongs.

The chief objection to this route for through

traffic as compared with the Portland line, consists in its greater distance to the seaboard and the greater number of separate roads of which the line is composed.

When several roads are operated in connection, forming in the aggregate a line of several hundred miles in length, with lateral lines extending in various directions, it is found extremely difficult so to regulate the distribution of cars as to meet the demands of trade.

Serious difficulties have been encountered in the United States, where many long lines are composed of distinct roads of various lengths, operated by separate corporations.

Each corporation has its local trade which it is highly important should be accommodated; to do this cars must be provided for each station on the main line and its branches;—and at the same time others returning to the several branches of other roads, composing the line, and to lateral roads, which constitute parts of other main lines.

It will be readily perceived that without the most perfect arrangement there will be difficulties in returning the required number of cars to all the stations at the time they may be wanted.

Cars often find their way on to other lines which have no arrangement for an interchange and are missing for months.

There are periods of the year when there is a vastly increased amount of business to be done not only of local but of through traffic, and in many instances the trade preponderating greatly in one direction, the cars are many of them to be returned empty.

Trade varies on different roads, and is subject to changes more or less at various stations on the same line, and it often becomes difficult even for one corporation to systematize its business so as to return cars to the proper stations to meet the immediate demands of its own trade.

But when we combine a large number of corporations having an aggregate length of road of three or four hundred miles, each corporation operating its own road, and each striving to accommodate its own local business, there will unavoidably be much confusion and irregularity.

The agents at the various stations are always desirous of securing the requisite number of cars to dispose of freight that may have been left in their charge, with the urgent solicitation of the owners that it should be forwarded immediately.

And often various descriptions of freight must reach market within a limited time, or the owner and the company with whom it is deposited suffer serious loss.

Under these circumstances, it is not surprising that every station agent should use every effort to secure a sufficient number of return cars in which to forward the freight left in his charge.

Commencing at the end of the line towards which is the greatest tonnage, the cars on their return are many of them empty or lightly loaded, and these are to be left at various stations, the number to be regulated by the

amount and the pressing nature of the business to be done.

The consequence is, that in the anxiety to accommodate all the business, the greater number of cars are left at way stations and branches nearest the terminus or market, while the more remote stations in the interior and the other extremity of the line are unsupplied.

These difficulties are much enhanced by an increased number of roads forming the line, particularly when each road is under distinct management.

There is now in operation an uninterrupted line of railway between Boston and Buffalo. The distance is 535 miles, and there are 10 distinct corporations, each of which operates its own road.

The difficulty of effecting satisfactory arrangements with the several corporations, and the impossibility of controlling the return and proper distribution of cars to the several roads, render necessary a transshipment of freight at Troy.

But even with this division of the line it is found extremely difficult to return the cars westward so as to meet the demands of trade.

A portion of the time during the great press of business last winter, it often occurred that there were no freight cars, or a very limited number, west of Syracuse, about midway of the line between Troy and Buffalo, nearly the whole being detained on the eastern portion of the line.

This result arose in a great degree probably from imperfect arrangements and the want of a full supply of cars; but it shows conclusively that on a long line of roads operated by separate companies, much difficulty will be experienced in the return of cars.

To be Continued.

#### NEW IRON BRIDGE.

Circumstances having of late, says the Manchester Examiner, directed a great deal of public attention to railway and other bridges, of iron structure, particularly the former, and shown that some of those formerly believed to have been made on a principle which ensured their safety, are really not so, it is important to know that further attempts are being made to construct bridges, which shall, to a much greater extent, combine safety with economy and simplicity. Yesterday we saw a model of one which is said to combine these important properties, and is now exhibiting at the Town-hall warehouse, Cross-street. It is a perfect arch, composed wholly of iron, is 22½ feet long, 8 inches deep, 20 broad, and weighs about 6½ cwt. It combines the arch with the abutment bridge, and they can be used separately or together. All the tension parts are made of wrought-iron, and the compression parts of cast-iron. It is so constructed that the rafter and ring-post principle intersect throughout the whole of the structure; and there are chains at the bottom and centre for keeping the whole in a perfect state of tension, thus equally distributing the weight or pressure. The model now supports a weight of 50½ cwt. without having the abutments up; it, consequently depends upon the chains entirely.

We are told that, if the weight be taken off the centre of the arch, its curve would still be maintained without the slightest deviation: it possesses another important property—that of compensating itself against heat and cold.

#### RAILROAD SPEED INDICATOR.

An ingenious contrivance for registering the speed on railway trains, has, within the past week, been deposited in the Royal Polytechnic Institution. The apparatus is intended to prove the rate of travelling by railways, and also the time occupied by each stoppage at the various stations on the line. As a description of this invention might be acceptable to our readers, we give the following account:—The paper which is to receive the register, is a long slip, about one inch broad, and length proportioned to the time the train may be upon the journey. This paper is rolled upon a small cylinder in the first instance, and one end is made fast to a cylinder of larger size, about 8 or 9 in. in diameter; this cylinder is then made to revolve by means of a clock, attached to the apparatus—so that it turns round every half hour; consequently, about three-quarters of an inch of the paper passes any given point every minute; a pencil is now fixed to the upper part of the apparatus, so that it presses on the paper—consequently, as the paper moves round, would make a straight line upon it, were it not that the pencil itself had a lateral motion given to it. This arrangement is so attached to the train, that the pencil moves from one side of the paper to the other every quarter of a mile that the train travels. By this compound motion, a series of diagonal lines are produced upon the paper; the number of lines indicate time. As soon as the train arrives at a station, a straight line merely is produced; and, by observing the length of this line, it indicates how long the train was at the station. The apparatus is the invention of a gentleman named Ricardo.

#### Items.

**Patent Forge and Fan Blast.**—Lieut. Col. Dundas, C. B., director of the foundry department; Lieut. Col. Gordon, director of the carriage department; Lieut. Col. Colquhoun, of the same department; and Major Palliser, of the proof department, assembled at Woolwich dockyard, recently to witness experiments with Mr. Haig's patent forge and fan blast, for producing great heat with manual labor only. The first experiment was made to ascertain its capabilities compared with the common smith's bellows and forge attached to the troops of royal horse artillery and field batteries, when employed in active service; and it was shown that Mr. Haig's plan was not only efficient for all that the bellows and smith's forge could accomplish, but its far greater advantages were shown by a broken axle of a field carriage being brought to an excellent welding heat, and welded in 25 minutes. A similar result could not have been effected with the usual smith's forge.—The next experiment was made in the dial square of the foundry department, two of Mr. Haig's machines being placed adjoining a furnace for fusing iron or cast metal—one



of the machines being worked by a lever handle, and the other by a crank handle.—An excellent casting was soon obtained, and the crank handled machine shown to be the best and easiest worked. An experiment also took place to ascertain the efficiency of the fan-blast in making shot red hot, and in eight minutes 12-pounders were made red hot, and ready for firing. The invention is very portable, and suitable for ships and war steamers and will be a great advantage in the field, and at foreign stations, where small parties of artillerymen are attached.—*London Mining Journal.*

**Electric Magnetic Telegraph in Austria.**—The works for the construction of the electric magnetic telegraph along the principal line, at Gratz, are almost completed; and as this telegraphic line will also go over the Sommering Pass, where as yet there is no railway road, it will join the Austrian telegraphic station at Gloggnitz—by which means there will be an uninterrupted rapid communication between Gratz, Vienna and Cilly, which in the present state of Italian affairs is of the greatest importance. Some of the peasantry, who came too near the wire, for curiosity, to examine it, received such a severe shock that they fell to the ground. This occasioned such a superstitious fear throughout the whole valley of the Murthul, that all the inhabitants are afraid to come near this wonderful machine; and it is therefore unnecessary to keep a watch upon the works to prevent people from coming too near.—*Ibid.*

**Copper Mines of Cuba.**—We learn from Madrid, that a company is in course of formation there, with the object of working some copper mines in Cuba. It demands that it should have, during a period of forty years, the privilege of importing into Spain copper ore free of duty, and then, again, the same privilege of exporting abroad. It also demands that a duty should be imposed on all other companies exporting from Cuba. This matter had been referred by the government to the royal council, by whom it was decided with a majority of eight votes to seven, that the privilege of free importation from Cuba should be granted, but for 25 years only.—*Senor Burgos*, an influential member of the council, has a so considerable interest in the company.—*Ib.*

**Improvements in Copper Smelting.**—We understand a patent has been obtained for a process of smelting copper ores, whether consisting of the oxides, sulphurets or carbonates on a principle entirely new, and by which pure merchantable copper can be produced at a cost of £5 per ton. We have every reason to believe that we shall be enabled, in our next number, to lay before our readers a part, if not the whole, of the specification, with diagrams, explanatory of the buildings and machinery required in the manipulation. The trials of new methods now in operation at Swansea, Dartmoor, etc., and the success which appears to have followed Mr. Bankart's experiments, render the present invention of great interest to every one at all connected with the copper trade; and we shall endeavor

to give the fullest, and most clear, account of the process, that the materials with which we may be furnished will enable us to do.

**Institution of Mechanical Engineers.**—The next general meeting of the members of the Institution of Mechanical Engineers, is to be held in the Institution-rooms, Temple-buildings, New street, Birmingham, on Wednesday next, the 23th inst., when the President, G. STEPHENSON, Esq., will take the chair.—Papers will be read on the following subjects:—On a safety break for railway carriages—on the practicability of effecting a mechanical communication between the guards and engine drivers of railway trains—on Smith's patent steam indicator, for marine and other boilers—on the fan blast (supplemental paper)—on iron suspension bridges—on a turn-table lathe—on the balancing of railway wheels—on a steam helve—on boring cylinders—on locomotive engines for luggage trains—on a machine for perforating plates for tubular bridges, boilers, etc.—on the application of Jones's patent gas exhaust, as a substitute for the fan blast. We shall give a report of the proceedings in our next Journal.—*Ib.*

**Improvements in the Screw Winch.**—We have seen a new description of this useful tool, which has just been registered by Messrs. Smith and English, of Princes-street, Leicester-square, which, while it possesses all the powers and capabilities of the old screw-handle screw winch, can be applied in a considerably less time, is equally effective, and much more economical. The fixed jaw and handle is the same as usual, only the latter has a serrated rack on its upper surface. The moveable jaw has a corresponding rack in the upper face of the slot, and is furnished at the bottom with a pin, which makes a quarter revolution—having on one portion of its circumference a flat surface, and worked by a trigger. When this flat surface is uppermost, the jaw slides easily; but, on depressing the trigger, the cylindrical face of the pin bites against the handle, and fixes the jaw by the aid of the two racks. It works with the greatest rapidity.—*Ib.*

**Telegraphic Communication with France.**—We understand that arrangements are in progress for carrying a line of submarine telegraph from Dover to Calais—indeed we are led to expect that, in a few weeks, all the advantages of instant intercommunication between the two countries will be in full operation.

**Parsey's Compressed Air Engine.**—We understand that an air chamber, on Mr. Parsey's principle, constructed at Birmingham, is now in London, and will be very shortly tested. It is represented to us as an exceedingly strong piece of machinery; and we shall be anxious to learn the results of the trial.

#### A WORD TO THE FEW. ¶

The current volume of the Journal is nearly completed—four numbers more, and the Index, will complete the twentieth volume, and the fifteenth year of its publication. There are yet quite a number of accounts for the current year—as well as a few for previous years—which are not paid. This delay to

each subscriber cannot benefit the parties—while to us the delay of one or two hundred is a very serious matter, and may even be the cause of discontinuing the publication entirely.

The difficulty, and expense, of sending an agent to each subscriber—scattered, as they are, all over the Union—is to great to be encountered; and the losses from removal, changes of circumstances and death—when the accounts are suffered to run for several years—are to great for so small a circulation: therefore it has become a matter of necessity to call upon those in arrears to remit the amount by mail at once—before the close of this volume, if possible; and I will add that it will save trouble and postage, and be only a fair return for past delays, to enclose, at the same time, the next year's subscription. By doing so, they will materially promote our convenience, and the prosperity of the Journal.

I shall hereafter, while the Journal is under my charge, give to it my undivided attention, and hope to be able to make it deserving of a prompt and liberal support, and I shall look to every friend of the cause for aid in sustaining it.

D. K. MINOR, Editor.

#### DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

#### RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS

of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,

ELIJAH PACKARD,

ISAAC MILLS,

SPRINGFIELD, MASS.

**KEARNEY FIRE BRICK. F. W. BRINLEY**, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire,

Peter Cooper,

Murdock, Leavitt & Co. } New York.

J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr.

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J. M. L. & W. H. Seovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.

Eagle Screw Co. }

William Parker, Supr. East and West. R. R.

New Jersey Malleable Iron Co., Newark N. J.

Gardner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly.

35

#### THE NEWCASTLE MANUFACTURING

Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

a45

President of the Newcastle Manuf. Co.

#### RAILROAD IRON AND LOCOMOTIVE

Tyres imported to order and constantly on hand

A. & G. RALSTON

by Mar. 20th

4 South Front St., Philadelphia.

**NOTICE TO CONTRACTORS.—GREAT WESTERN RAILWAY, CANADA WEST.**  
Sealed proposals will be received until the 1st day of next October, at the Office of the Great Western Railway Company, for the Grading and Masonry of the Western Division, extending from London to Windsor, a distance of one hundred and ten miles; also for the branch to Port Sarnia, forty-five miles in length.

Plans and Specifications of the work can be examined at the Engineers' Office, in Hamilton and London, on and after the 15th of September.

C. B. STUART, Engineer.

Hamilton, July 30, 1847.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 48 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L. and other fixtures to suit, fitting together with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to  
**FULLER & BROWN, Agents.**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

**CHILLED RAILROAD WHEELS.—THE**  
undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,

Willow St. below 13th,

Nov. 10, 1847. [M.] Philadelphia, Penna.

**DAY, CROSKY & ROSS,**  
COMMISSION MERCHANTS,  
57 THREADNEEDLE STREET, LONDON.  
13 ORCHARD PLACE, SOUTHAMPTON.  
SHIPPING & COMMISSION AGENTS

FOR

**PASSENGERS, SPECIE, GOODS, PARCELS, &c.**  
To all parts of the United States, North and South America, West Indies, India, (overland or otherwise,) Constantinople, Egypt, the Mediterranean, the Peninsula, and all parts of France—via Havre.

Agents at Cowes for the Ocean Steam Navigation of New York.

Persons wishing to transact business with Messrs. D. C. & R., will please apply to the subscriber, who will make cash advances on consignments to their address.

July 31—3m

ROBERT GRACIE.

**LOCOMOTIVE AND CAR AXLES.**  
The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address  
**SAML KIMBER & CO.,**  
Willow Street Wharf,

Philadelphia, Pa.

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 105 Chestnut street.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**  
Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, &c., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

92v11y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrestor recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckley & Drury, Boston, will be promptly executed.

**FRENCH & BAIRD.**  
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

••• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Ewing, Philadelphia; Wm. E. Coffin & Co., Boston.

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

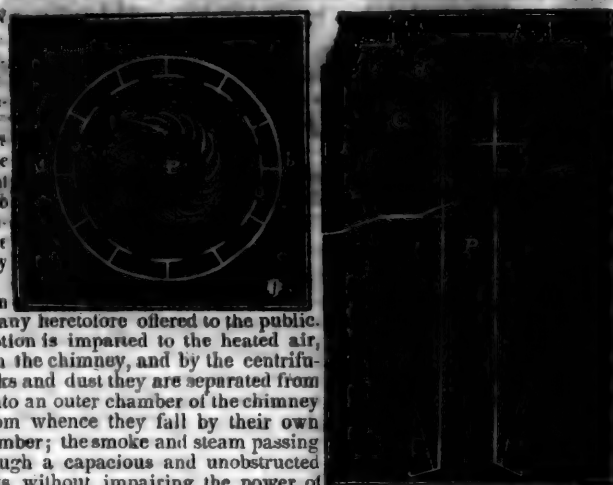
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
a45 Paterson, N. J., or 60 Wall street, N. York.





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## CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

### ESTIMATE OF THE PROBABLE COST OF ONE MILE.

1,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of

the Rail = \$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 331f

## LAP-WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1-4 TO 6 INCHES DIAMETER,  
and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

1725

28 Platt street, New York.

## RAILROAD IRON.

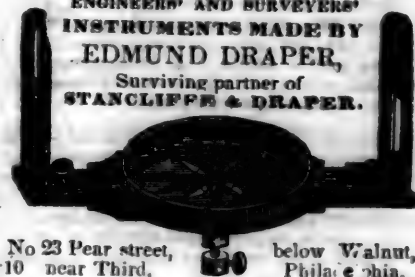
### MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

Address J. M. HOWE,

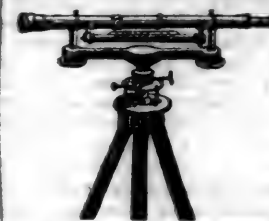
Pres't. Mt. Savage Iron Works,  
Dec. 25, 17\* Maryland.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1710 near Third,

below Walnut,  
Philadelphia.



THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

West Troy, May 12, 1847.

ANDREW MENEELY.

17\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Bloom suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

121f Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,  
Agents.

1748

77 Pine St., New York.

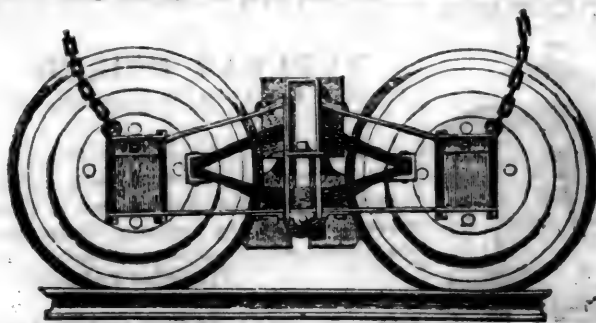
**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

143 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 331f

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed.]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed.] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed.]

T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed.]

JOHN LEACH,

Jamaica November 12, 1845.

1y19

Sup't Motive Power

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

For sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4	13 5	10	21 -		50	15-16	20
13	3	9 3	8	16 -		27	11-16	13
14	3	6 11	7	12 8		17	9-16	10
15	2	5 2	6	9 4		13	1-2	7
16	2	4 3	6	8 8		10	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

1y25

G. A. NICOLLS,

Reading, Pa.

## THE SUBSCRIBERS, AGENTS FOR

the sale of  
Codorus,  
Glendon,  
Spring Mill and  
Valley,  
Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Patent Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 3 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

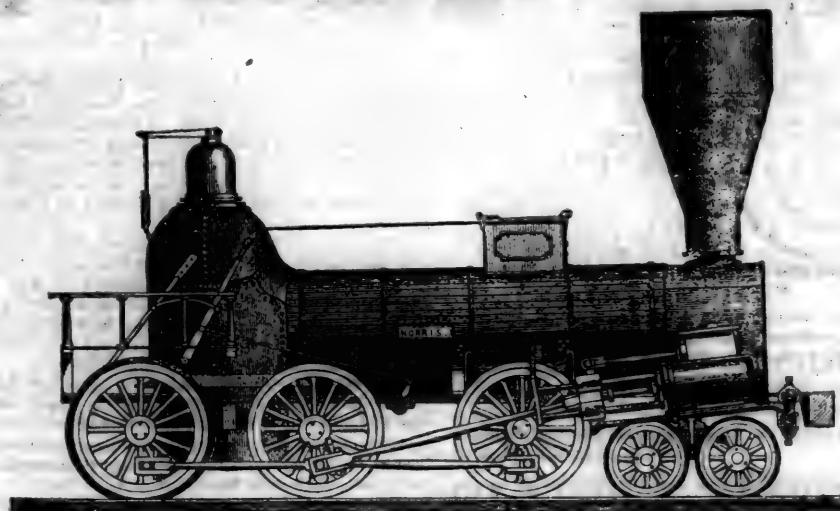
1y10

New York.



# NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



**MANUFACTURE** to order Locomotive Steam Engines of every plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish. Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality. Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

**LAP-WELDED WROUGHT IRON TUBES** for Tubular Boilers, from 1½ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patience.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 281

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

**THE SUBSCRIBERS ARE PREPARED TO** execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York.

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits. This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly exposed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

281

J. BALL & CO.

**CONNECTION BETWEEN THE BOSTON** and Lowell and the Boston and Maine Railroads. On and after April



1st, 1847, passenger trains will run as follows, viz:

Leaving Lowell at 7 11-4 a.m., and 2 1-2, 4 1-2, and 6 1-2 p.m., to connect at the junction in Wilmington with the eastward trains—at 7 a.m. and 2 1-2 p.m. with those to Portland; at 4 1-2 p.m. to Great Falls only, with a detention of 45 minutes at the junction, and at 11 1-4 a.m. and 6 1-2 p.m., to Haverhill only. Leaving the junction in Wilmington, for Lowell, at about 7 1-4 a.m. on arrival of the morning train from Haverhill; at about 9 a.m., on arrival of the morning trains from Great Falls. At about 11 3-4 a.m., on arrival of the morning train from Portland. At about 5 p.m. on arrival of the afternoon trains from Haverhill. At about 7 1-4 p.m. on arrival of the afternoon train from Portland.

WALDO BIGGINSON, Agent



## PATERSON RAILROAD

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at	New York at
8 o'clock a.m.	9½ o'clock a.m.
11½ o'clock a.m.	12 1-4 o'clock p.m.
4 o'clock p.m.	5½ o'clock p.m.

On Sunday.

8 o'clock a.m.	9½ o'clock a.m.
4 o'clock p.m.	5½ o'clock p.m.

Office 75 Courtland St.

251





**BALTIMORE AND OHIO RAILROAD.**  
**MAIN STEM.** The Train carrying the

Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13yl

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "

From Bellefontaine to Sandusky city by railroad.....102 "

**FARE**—From Cincinnati to Lebanon.....\$1 00  
" " " Xenia.....1 50  
" " " Springfield.. 2 00  
" " " Columbus.. 4 00  
" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

W. H. CLEMENT, Sup'l.

**BALTIMORE AND SUSQUEHANNA**  
Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:  
Leaves Baltimore at.....9 a.m. and 3½ p.m.  
Arrives at.....9 a.m. and 6½ p.m.  
Leaves York at.....5 a.m. and 3 p.m.  
Arrives at.....12½ p.m. and 8 p.m.  
Leaves York for Columbia at.....1½ p.m. and 8 a.m.  
Leaves Columbia for York at.....8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50  
" Wrightsville.....2 00  
" Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburgh via stage to Harrisburg.....\$9  
Or via Lancaster by railroad.....10  
Through tickets to Harrisburg or Gettysburg.....3  
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at.....5½ p.m.  
Returning, leaves Owning's Mills at.....7 a.m.  
D. C. H. BORDLEY, Sup't.  
Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 26 miles. Fare \$1-25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35yl

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad.....Miles. 190  
Macon to Atlanta—Macon and Western.....101  
Atlanta to Oothcaloga—Western and Atlantic.. 80  
Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	\$0 50	\$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones.....	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot.....	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot.....	0 20 pr. 100lbs. 35	
Crockery, per cubic foot.....	0 15 "	" 35
Molasses and Oil, per hhd., (smaller casks in proportion). 9 00		12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each.....	1 25	1 50
Ploughs, (small,) and Wheelbarrows.....	0 80	1 05
Salt, per Liverpool Sack.....	0 70	0 95
Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.		

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel. On brls. dry (except lime).... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred. On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd. Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Supt. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama. Fare through from Charleston to Montgomery daily.....\$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia.....28 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer. Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.  
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars.....\$4 00  
Second class cars.....3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m. and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25M





# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III, No. 50.]

SATURDAY, DECEMBER 11, 1847.

[WHOLE No. 599, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, December 11, 1847.

## A WORD TO ALL.

**Missing Numbers.**—We again remind our subscribers that we shall cheerfully supply missing numbers for the current and past volumes—if we have them to spare—on receiving a list. It is much more easy to supply them now than at any future period.

If we have omitted to comply with any of the applications heretofore made for missing numbers, it has arisen from inability at the time—not from indisposition—it may therefore be worth the labor of furnishing a new list, as we have received many loose numbers of back volumes, from which they may possibly be supplied.

## Intercommunication between the Atlantic and Pacific Oceans.

The Northern and Southern Routes.

We shall re-publish, at an early day, from "*De Bow's Commercial Review*,"—a very valuable work, published at New Orleans—an able article prepared by Mr. A. Whitney, accompanied by two maps, explanatory of the relative merits of the proposed northern and southern routes for a railroad to the Pacific. This article has been prepared with much labor, and it contains much valuable information, bearing upon the subject, not easily found in so small compass—and it will therefore be read with interest.

## Hamilton and Cincinnati Railroad.

The surveys preparatory to a final determination as to the particular location of the Hamilton and Cincinnati Railroad has been completed. The subscribers are paying quite promptly, and generally manifest a willingness to pay up, so that the entire line may be put under contract at once.

## Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, December 2, 1847.

	Tons, cwt.
From Port Carbon.....	7,966 09
" Pottsville.....	2,704 10
" Schuylkill Haven.....	11,646 16
" Port Clinton.....	2,210 03

Total for week.....	24,527 18
Previously this year.....	1,256,567 17

Total.....1,281,095 15

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending December 2, 1847.

	Tons, cwt.
Pottsville and Port Carbon.....	1,760 00
Schuylkill Haven.....	1,507 06
Port Clinton.....	166 00

This week.....	3,433 06
Previously.....	228,318 03

Total.....231,751 09

## Richmond and Danville Railroad.

The friends of this road have organized, and chosen their officers, and it appears from the annexed notice of the meeting, which we take from the Richmond Republican, that they have decided upon an independent line, which, we suppose, means to have no connection with the "*Richmond and Ohio road*," as far as Farmville, or some other suitable place of divergence, as has been proposed or suggested by some, and very properly as we think.

It is much easier to talk about, than to accomplish such works in Virginia, and we therefore have supposed that it would be easier for the two companies to construct a line which should serve as a "common stem" or "trunk line,"—as they call it in England—for fifty or sixty miles, and then each take its proper course, than to raise the means to construct two distinct, and nearly parallel, lines the same distance; but it seems that different views prevail—at least so far as the friends of the Danville line are concerned,—and they have decided on "an independent line."

We do not assume, by any means, at this distance, to understand all the bearings of this subject, yet, looking at it from our peculiar position, we cannot but express our apprehension that this decision will operate seriously against the early completion

of either work. Indeed, if we look at the map rightly, and understand the relative position of places, we would suggest the following plan for the consideration of those interested in the two important works—viz: make a thorough examination of the country between Richmond and Prince Edward county, fixing the point of divergence at Farmville, or the Court House, or other suitable point, which shall be about equidistant from a direct line from Richmond to Danville, and from Richmond to Lynchburgh. Such a line would pass—at about 28 miles from Richmond—not far from the western termination of the Clover Hill railroad, which connects with the Richmond and Petersburg road. When the best line between Richmond to Prince Edward county was decided upon, would it not be good policy to commence operations, with the united means and energies of both companies, at the point nearest the termination of the Clover Hill road, and complete the work from there to the point of divergence in Prince Edward county, before the construction of that section of 23 or 30 miles from the termination of the Clover Hill road to Richmond? It appears so to us, in as much as the Clover Hill, and Richmond and Petersburg roads may be used—for the time being—to accommodate all the business which will be offered, not only until the main stem is completed to the point of divergence in Prince Edward county, but also until the diverging roads shall be in operation for many miles beyond that point.

In this way, it seems to us that, more advantages will result to the people of Virginia, with a given outlay of capital, and the ultimate completion of both works—and the extension of the Danville road through North Carolina—secured than by the course marked out by the friends of the latter road at their late meeting.

Of course these are views expressed without understanding the local bearings of the question, and must be taken for what they are worth. We go thoroughly, however, for a "main line" from Richmond to the Ohio river, and then for branch roads, in each direction, to all parts of the upper country where business requires, and capital can be obtained to build them; as such a course will, in time, again restore the "old dominion" to her relative rank in the union; but let her citizens adopt the course formerly pursued by Pennsylvania, of commencing many works at the same time, in detached parts, which cannot be connected, and made each to con-

tribute to the other, and it will be a long time before any one of them will be completed, and *longer* before those which may be completed will become profitable. These, however, are the views of a distant looker-on, whose only aim is to promote the greatest amount of improvement, and accommodate the greatest number of people, with the least outlay of capital.

"We learn," says the editor of the Republican, "that the meeting of the stockholders of the Richmond and Danville railroad company was organized on the 29th inst., by appointing Mr. Wm. H. Dennis, the Senator from Charlotte, to the Chair, and Messrs. — Hopkins of Danville, and James C. Crane of Richmond, Secretaries. The following gentlemen were unanimously elected President and Directors of the company:

#### PRESIDENT.

WHITWELL P. TUNSTALL, of Pittsylvania.

#### DIRECTORS.

Isaac Davenport, (also Vice President,) of Richmond.

Vincent Witcher, of Pittsylvania.

Lewis E. Harvie, of Amelia.

A. F. D. Gifford, of Chesterfield.

John A. Lancaster, of Richmond.

"The meeting, by an unanimous vote declared in favor of a 'direct, eligible and independent road.' It also, by an unanimous vote, refused to give instructions to the directors. The decision in favor of an independent line secured several subscriptions, which would have been otherwise withheld.

"No engineer was named; the election of that officer being left to the directors. The meeting adjourned Thursday night.

"It is added that the meeting was a large and enthusiastic one, and that a delegation was in attendance from Wytheville, which assured the meeting of the lively interest felt in that county, in Carroll, and other adjoining counties, in the Danville road, and of their earnest desire to connect the proposed road from the southwest with it."

#### Pittsburg and Ohio Railroad.

Or the Central Pennsylvania Railroad continued to the Ohio State Line.

The Pittsburg Gazette says that "the late election of the stockholders of the Pittsburg and Connellsville railroad company, by which we have an incorporated company, fully organized on an excellent charter, with powers to erect a railroad from Pittsburg to the Ohio State line, has given very general satisfaction to our citizens, and we look upon it as an era of no small magnitude in the history of the onward progress of our flourishing city. But in order that the advantages we now possess may be made available to our present and future prosperity, two things are essentially necessary—these are *immediate* action, and *united* action."

"That Pittsburg can build a railroad to the Ohio State line, by her own unassisted means and energies, cannot be doubted—that she *will* do it, we cannot permit ourselves to doubt."

Nordo we—if the people make up their minds to do it, and do it *at once*. It is of great importance to the Central Pennsylvania road, and to Philadelphia, that this road should be completed at the earliest possible period—or at least as soon as the Central road—as its construction will ensure the construction also of a railroad to Cleveland, and another westward through the State, and thus bring many of the Northern Ohio, Indiana, Illinois, and Southern Michigan merchants, for New York, through Philadelphia, who now seldom, if ever, come this way.

The Philadelphia Bulletin says of the Central

railroad that "this great enterprise continues to look most cheering, and we cannot but congratulate our fellow citizens on the happy settlement of the Connellsville question. By the dissolution of that company, the interests of Philadelphia and her sister city, Pittsburg, will be forever identified, and we rejoice to hear that its former president, Col. Robinson, has prepared a strong memorial to the authorities of Allegheny city to contribute half a million to the work, with flattering prospects of success. We hope this will incite our own districts to go and do likewise. So fully is the importance of its speedy completion appreciated by its friends, that several have volunteered additional subscriptions to double their original amounts. This is a wise policy, and if embraced by all, this great work may and ought to be finished by the first day of the new half century. On the same day—January 1, 1850—the New York and Erie railroad is to be opened; so say its friends."

And so *should* it be. No delay should be allowed which can be avoided by the most untiring diligence and perseverance. To Philadelphia, *time is very important*—one year's delay may be productive of great loss to her merchants, and may give time for the formation of connections, in other directions, which cannot be easily counteracted—and thus, for a long time, she may be deprived of the benefits of what may be considered legitimately her business; and therefore the *people* of Philadelphia, the property holders as well as the business men throughout the entire country, owe it to themselves to come to the aid of these works which are in a measure to change the current of business in their favor.

#### The Postmaster General and the Railroads again.

We have had occasion to refer several times to the controversy between Mr. Cave Johnson, and the Richmond, Fredericksburgh, and Potomac railroad, and Washington steamboat company. In our last number we gave some extracts from the official correspondence between the parties, on the subject, for the purpose of placing it fairly before the railroad interest of the country, as the present movement is evidently only the commencement of a system which is to be brought to bear, in detail, upon other companies.

We are induced to refer to this subject again, at this time, as we understand that the Postmaster General has taken the mails from the railroad—sending the *way* mail by wagons, and the *Great Southern* mail by the Bay-route, by steamboat; and if we are correctly informed, the cost to the department will be several thousand dollars *more*, instead of less, than has been paid.

The question has now assumed an importance which will command the attention of the business community, and we trust that it will be brought promptly before Congress, that it may be settled in a manner just, alike to the railroad interest, and to the department.

The following remarks are from the Richmond Republican, and give some details which may be useful to a proper understanding of the matter. The editor says:—

The public are already advised that the Postmaster General has refused to continue the compensation heretofore paid to the railroad and steamboat companies, for transportation of the mail between Richmond and Washington. We have looked a little into this matter, and feel no hesitation in saying that the Postmaster General is in the wrong.

We give all proper weight to cry against "monopolies," but there is nothing in the present case to justify a departure from the old adage that "it takes two to make a bargain."

The Postmaster General has assumed the position, that because the service is partly by railroad and partly by steamboat, he is restricted in reference to the latter, and estimates it at 12 1/2 per cent. less than the former. It seems, also, that since the contract, four years ago, and the award of President Tyler, in July, 1843, the department has required a *different* and much more *expensive* service, and at a lower rate. For instance, it has required a *shorter schedule*, by which the steamboat company is compelled to give up its *way-travel*, (said to be worth \$5000 a year) and has so fixed the hours that it requires *two* ice-boats instead of one, and *two* sets of cars *daily*, for the new service.

It is truly stated by the directors of the railroad company, that "the service on the railroad has been performed during the *whole* of the last seven years with so much punctuality and exactness, that a failure of the mail has very rarely occurred, and when one has occurred, it has so evidently resulted from unavoidable causes, that a *mail fine* has in no instance been imposed on the railroad company within that time. Indeed, the regularity referred to has been a matter of great surprise to the public, when the length of the line is considered, and the fact that it is partly by steamboat and partly by railroad. No one who travels the route, can fail to notice the great increase of the mail in bulk, or the notorious fact that the ice-boats have overcome all difficulties, at a greatly increased expense.

Formerly, 11 hours were allowed in one direction, and 11 1/2 in another. *Now*, only 9 hours are allowed one way, and 9 1/2 the other. This necessarily compels the steamboat line to give up its hitherto profitable *way-travel*. It is estimated, and we have no doubt correctly, that if conveyed by the old mode, the present mail would often require two lines of wagons, and some *fifty teams* of horses each; and then think of the *difference in the time*!

The board of directors are unquestionably right in their construction of the law of 1845, and are sustained in it by eminent counsel, that *no distinction* is made between the *railroad* and *steamboat* portions of a railroad and steamboat route. The suggestion of the department, that there is no road north of the city of New York which receives anything like the amount offered on this route, for even double and triple daily service, is entitled to no weight. It is forgotten that the amount of travel on these northern routes is at least *triple*, and that therefore the business is conducted at less expense.

But, to cut the matter short, the people will not stand Mr. Johnson's construction. If he should attempt to send the great mail between Washington and Richmond by the *old mode*, he will soon have *no mail to carry*. He cannot prohibit, nor can Congress, an express to carry packages by the railroad and



steamboat line. The Constitution of the United States gives Congress power to establish post routes, but it certainly does not prohibit individuals from carrying any thing they please—and in the present age of "progress," the people will not submit to *snail-like* conveyances, even to put down "monopolies," nor to aid Mr. Johnson in his favorite system of economy.

It is time the public voice should be heard. The Postmaster General has not only undertaken to reduce the allowance formerly awarded by the President, but he now contends for a *still greater reduction*, whilst the service is unquestionably much enhanced. The average weight of the mail going south from Washington, for five days, in June, was about 3,000 pounds, and the largest 5,200 pounds. During the sessions of Congress, it is greatly increased, and before the completion of a *four years* contract, the progress of affairs may make it more than double what it is at present.

We hope the companies which have heretofore accommodated the public so amply, will take prompt measures to accommodate them still, by carrying newspapers and letters by expresses. Any arrangement of the Postmaster General, to consume *twenty four hours* instead of *nine*, will assuredly fail. The public are accustomed to *speed*, and this they must have under all circumstances.

We think the Postmaster General will find himself at greater expense than heretofore, and will fail to accommodate the community as desired.

#### Northern, N. H., Railroad Opening.

The Northern railroad, from Grafton to Lebanon, N. H., was opened on Wednesday, the 20th of November. A large party of stockholders and invited guests went from Boston in a special train. The road has been in operation for some time past, as far as Grafton. From that point the line of road is through Orange, Canaan, and Enfield, to the village of Lebanon, within about five miles of the Connecticut river, and its proposed termination, where, at the mouth of the White river in Vermont, it will connect with the Vermont Central road, and with that and the Ogdensburg road, form a continuous line from Boston to the waters of the St. Lawrence at Ogdensburg. The completion of the road from Lebanon village to the Connecticut river, together with the construction of a truss bridge about 600 feet long, over the Connecticut—will be effected in season for the opening of the Vermont Central road to Northfield, and perhaps Montpelier, by the 4th of July next.

The line of the Northern road will be 69 miles, from the Merrimac to the Connecticut. It passes over a rough and forbidding country, and severe natural obstacles have been overcome in its construction. It is just two years since the work was commenced.

How little the people of the quiet village of Lebanon thought of a railroad the last time we were in their midst—on the 4th of July, 1819! The shrill whistle of the locomotive had then never been heard nor thought of, even in *old*, much less *New*, England; whereas now, as Mr. Webster pleasantly remarked, the people in every little village, and even the farmers in all parts of the country, think they must have a railroad that they may "ride behind the iron

horse, in those long wagons—to see each other—to carry their produce to market—and they *will have it*."

It was a proud day for the people of that vicinity, and the visitors from Boston must have enjoyed it exceedingly, notwithstanding the little accident on the way, and the delay of their dinner in consequence.

"The train arrived at Lebanon at about 5 o'clock P.M., being somewhat delayed by accidents. There were thousands of the people assembled: and we almost thought as we approached the depot, and saw so many to welcome us, with hurrahs and shouts, that all New Hampshire had congregated there.—They were there to welcome those who came in the train—to congratulate them upon the success of that great and bold enterprise, which united western New Hampshire with Massachusetts.

"The place was filled by the crowd who were in waiting at Lebanon, and those who had arrived in the train. The refreshments were provided by the citizens of Lebanon, as an expression of their joy at the completion of this great enterprise, which promises to be so advantageous to them. May all their hopes be more than realized. When all the crowd had entered, the chairman for the evening, Mr. Lathrop, of Lebanon, bade all a hearty welcome. He was highly gratified to see so many friends coming to the celebration. He knew the road had *many* friends, but he did not think their number was quite so large; still, he was glad to see them all, and hoped that all would have enough. He said that the latch string hung out everywhere, and if there was not enough in New Hampshire, their neighbors in Vermont would supply them. He then invited his friends to fall to, which they did with a good will.

"After the repast, Gen. Nesmith, of Franklin, the president of the road, set the speaking a-going with a few excellent remarks, in regard to the difficulties met with, but all now vanished, and said that he was amply repaid for all his trouble by the success of the enterprise, and the happiness of the company present.

"Charles T. Russell, Esq., of Boston, a director of the road, then, in a few very neat and appropriate remarks, alluded to the presence there of one whom all would be delighted to see and hear. One who had been the steadfast friend of internal improvement, through whose farm this railroad went, connecting the home of his adoption with the home of his nativity, (Boscawen) and his Alma Mater (Dartmouth college, in Hanover.)

Mr. Russell closed with the following sentiment:

"The Honorable Daniel Webster, happily present with us to-day—Too ardent in his love, too eloquent in his defence of our glorious Union, ever to fail to sanction and commend those internal improvements which tend to cement and perpetuate it."

"Mr. Webster arose, amid deafening cheers, and nowhere was he ever receive with more enthusiasm. The crowd was so great everywhere, that it was impossible to find a place where to write, so that we can only give a

slight sketch of his remarks. Mr. Webster alluded to the great interest he had always taken in railroads, and particularly this. It was one of peculiar interest to him; it passed by his own door, through his own farm, and through places with which he had been connected all his life. He admired the enterprise of the people in constructing it. The importance of the road was not only to the people along its route, but as a connecting link in still mightier enterprises. This road, here determined, connected Vermont and Montreal, Central Vermont, the Connecticut and Passumpsic. At this point it gave the traveller the choice of routes to other extensions; and he would further remark, that connected with the St. Lawrence and Ogdensburg railroad, it would tap, or rather it would relieve, the St. Lawrence of part of its burthen.

"By its greater speed, it will bring Ogdensburg as near to Boston as Albany to Buffalo, and it would soon bring lake Superior down to Massachusetts.

"Mr. Webster continued: New York was pre-eminent over other cities by its situation and its foreign commerce. He did not envy her—he would not undertake to compare the *town of Boston* with the great commercial emporium of this country and this continent; but he would say, that if he stood upon the top of Bunker Hill Monument, he could look off upon a population and a business very nearly as large as New York and Brooklyn and its vicinity. Boston and its vicinity extends to Newburyport. The whole Essex shore was one city, and they did certainly a larger business than New York. Boston, with the aid of the country, without anything like the actual advantages of her sister city, had made herself a rival not to be despised; and he would not undertake to calculate the extent of her commerce, when all the links of her railroad chain were completed. They would soon have a railroad to New York and Long Island Sound, by New Haven and the Connecticut river. People, he continued, were apt to speak of New England land as poor. Some of it is poor, but some of it is good. There is a great deal of land which is worth \$250 for cultivation, and that cannot be so very poor. New England is rich in its enterprise, rich in its products, in its power of human energy, and in its water powers, and in its application to them of machinery.

"The great chains of railroad traversing New England, were evidence enough of the enterprise of the people. They themselves had accomplished a great and difficult enterprise in bringing this road there; they had split the Grafton rocks, connected his home with their home; but what did all this? He would tell them it was natural result of free schools, free thought and free labor. FREE LABOR has done it."

We have not room for the entire proceedings, nor even for the whole of Mr. Webster's remarks, but the following are too true to be omitted. Mr. Webster said:

"By the original treaty of 1763 the boundary line between the British possessions in North America and the United States was

traced along the St. Lawrence and the great lakes and the forty-fifth degree of north latitude. It pursued the middle of the river and the lakes. It was a fixed geographical line and was run out by two or three commissioners. But it so happened, according to this boundary, that the vessels of the two nations could not navigate some parts of the St. Lawrence and the upper lakes without trespassing upon the territory of the adjoining power. The American could not conveniently navigate from lake Erie through lake Huron, without traversing a part of the Canada waters, while, on the other hand, in the long saw of the St. Lawrence, the channel and the deep water were on the American side. For all purposes of jurisdiction it was well enough to let the line remain as it was; but for the purposes of navigation it was quite obvious that the river and the lakes should be open to the ships of both nations from shore to shore. This was accordingly provided for in the treaty of Washington. The stipulation was opposed, in some quarters, as being a surrender of American soil to British invasion, but happily it was ratified; and he believed that every body was now convinced that the provision was beneficial.

"His friend had touched upon another topic—the great subject of internal improvement. Why, what in the world was government instituted for, except for internal improvement? Certainly not wholly or chiefly to regulate the external relations of nation and nation. Such relations were frequently those of war, of hostility. But government was not made for war. At present it was true, there were extended commercial relations between different countries, but they were only one branch, and that not the most important branch, of affairs to which the attention and care of government should be devoted. He took it that all really good government was established to do that for the people which needed to be done, and which the people could not do for themselves. Government should be merely the united, the concentrated force of the people; and therefore, *a priori*, it was the duty of government to consider whether that thing which was necessary to be done, could be done without governmental aid; if not, the presumption clearly was, that government ought to grant that aid and do that thing. Such had always appeared to him but a fair interpretation of the duty of government; and the propriety of this view he thought clearly appeared from another consideration. New Hampshire could not collect a dollar from any custom house within her limits; Massachusetts, one of the great commercial States, could not collect a dollar from any of her custom-houses. All the financial benefits of the entire commerce of the country accrued to the general government. Most certainly, then, it was for the government to provide for the necessities of commerce. Did it require the protection of forts, of lighthouses, of piers, of breakwaters, who but government was bound to grant that protection?

"Take the case of the breakwater in the Delaware, a work opposed for twenty years

upon constitutional grounds, though happily without effect: who was to expend a million of money on that? The little State of Delaware? She had no interest in the matter—at least no exclusive interest—not one-quarter as much as the city of Philadelphia.—Should it be Pennsylvania or New Jersey?—Neither was alone interested in the work. Maine, New Hampshire, Massachusetts, all New England, was as much concerned in that improvement as any part of the country, and in fact more so; for New England was more interested in the navigation of the Delaware than was any other region, and New England vessels were more likely to be wrecked there.

"Take another instance—the work projected in the harbor of Mobile some years since. It was opposed by the representatives of that very region, but he had voted for it throughout. Returning from Washington at the close of a session when the measure was unsuccessfully urged, one of his constituents, a little vexed at the course of proceeding, had asked him how he could support a measure which was so strenuously opposed by the very people it was most designed to benefit. His answer was ready: because, during the two or three years before, there had been several Massachusetts ships lost there—so true it was that the whole country was concerned in the improvement of any of its parts.

"But he supposed that allusion was more directly intended to that branch of the system of internal improvement which regarded canals and railways.

"Happily it had happened that, thus far, private enterprise and wealth had been able to accomplish, in this respect, about all that was necessary. And there could be no doubt that what could be accomplished by private enterprise was done more economically and to better advantage than in any other way. So far, therefore, as private enterprise could carry out a work of improvement, the much wiser course was to rely upon it. But with regard to the improvement of the western waters, this was not the case. The aid of government was necessary here. Every one knew that all such improvements had always been resisted, and he had heard a grave constitutional argument advanced against them that nature never made any harbors on the lakes, and therefore it was clear she never intended there should be any! To which he remembered to have replied that, so far as he knew, people were brought into the world without being clad, and therefore the argument was good that they never should wear clothing.

"The great western lakes were not a straight line of water. They pursued a zig-zag course. We beheld lake Erie stretched down into New York, as if to accommodate, especially, a comparatively southern region. We saw another of the chain reaching far into the northwest, to accommodate that region. Whoever would look at the map must see at once that nature intended the lakes for the benefit of vast, different and distant portions of the country. But it was a remarkable fact that there were but a few natural har-

bors on the lakes. What then should be done to improve the advantages offered by these immense sheets of water? The science of the age told us at once that it was expedient to construct harbors, but how were we to do it? He would not weary the company by going over what had been said on this subject for the past twenty years, sometimes with a degree of sprightliness, but oftener to tedium, from its earliest agitation to the days of the Chicago convention, and particularly the Memphis convention—a body, some of whose very distinguished members, though they could not dig a trench for a canal, or split a rock for the passage of a railroad, could yet skilfully split hairs for the sake of establishing a mere theory upon a mere abstraction. But for himself, he would say that he had always considered it as much a duty of government to improve and establish harbors on the western waters as to build a lighthouse in the harbor of Boston.

"With regard to railroads, there were two considerations which should not be overlooked. First, that they enhanced the value of property everywhere in their vicinity. In the course of a journey he made last year he passed over the railroad to Wilmington, N. Carolina. Along that line the people raised considerable corn, and produced some lumber, terpentine and the like. The road was violently opposed at first as an encroachment on private rights. It would cut down the pine trees of the people—it would take away their soil. He was made acquainted with a gentleman who had electioneered against the road, year after year, and had actually been elected to the State legislature on the strength of his opposition to the project. But the charter was granted, and this very man, in the course of conversation, admitted that since the road was opened, and he had found a market at Wilmington, he made more money by selling his hens and chickens and eggs than he before derived from the produce of his whole plantation. So much for one instance of increase in property caused by a railroad. Again, railroads serve to connect men and societies together. Every road that was built did much in this respect. In a pecuniary sense it was advantageous, but in this sense it was of still greater importance. All these enterprises formed bands of individual, social and political union between the people and the States, and the more of them there were the more would such ties be strengthened. They broke down the barriers of distance between persons and communities;—they promoted intercourse between man and man; they brought about more intimate and more just social relations—the true basis of just political relations. When we found men alike in character, following substantially the same pursuits, closely connected, individually and socially, we should there find the true foundation and basis of political union—such an union as alone can be the salvation of the States of this country."

The States of New Hampshire and Vermont have not, until recently, engaged in the construction of railroads, with spirit and a determination to avail themselves of their great advantages. Things how-



ever have changed, and we have not a doubt but that those States will have, within a few years, as many miles of good railroad, in proportion to their territory, as any of the States in the Union. At last three lines of railroad—emanating from Boston—will traverse those States diagonally, together with the numerous branches, and connecting links, sure to be constructed for the accommodation of towns and villages not on the main lines, and also besides a central line parallel with the Connecticut river, to, or nearly to, its source. The Portland and Montreal road will also cross their northeastern borders, and there will be a connecting link between the Rutland and New York and Massachusetts railroads, on the west side of the mountain—thus bringing every town and village, of any considerable business, into immediate, or near, connection with a railroad. This is sure to be the case for the reason assigned by Mr. Webster, viz: "that they enhance the value of property everywhere in their vicinity;" and, as the North Carolinian said, because he can make more money from his hens, chickens and eggs at Wilmington, than from his whole plantation before the road was made.

#### **Pennsylvania Railroad—First Annual Report.**

We have received a proof-sheet of the first annual report of this company. It is written in a business-like manner, and shows that the Directors have done their duty like men of business, whose whole aim has been to accomplish the object in view in the shortest possible time. It is not yet nine months since the company was organized and its officers chosen, yet they have put over seventy miles under contract, thirty of which is in a state of progress, quite satisfactory. And what is equally gratifying, they have nearly one million of dollars on hand—with which to push the work during this winter.

We have neither time, nor space, in this number for comment, but shall take an early opportunity of referring to the subject again.

#### **First Annual Report of the Directors of the Pennsylvania Railroad Company, to the Stockholders.—October 30, 1847.**

To the Stockholders of the Pennsylvania Railroad. GENTLEMEN,—The period has arrived, when under the provisions of the nineteenth section of the charter of the company, the Board are required to present to you an account of their proceedings before surrendering to you the trust which has been confided to them.

Upon entering on the duties assigned to them, in the prosecution of a work of such magnitude, in which their fellow citizens hold a deep stake, and in which the future prosperity of the city is largely interested, the Board felt their responsibility, well knowing that a false step at the commencement would damp the ardor of its friends and jeopardize its final success.

Earnest consideration was therefore given to the most effective organization of the engineer corps, upon which success in a great measure depended, and the Board determined to place that department under an efficient head, who should control the whole, with two associates, to have charge under his direction of the two divisions of the road respectively.

In the selection of a chief engineer, the Board were fortunate in obtaining the services of Mr. John Edgar Thomson, a gentle-

man of enlarged professional experience and sound judgment, who had obtained a well earned reputation upon the Georgia road, and in whom the Board place great confidence.

The office of associate, west, was filled by the election of Mr. Edward Miller, a gentleman well known and appreciated in this community, who has occupied several prominent positions in his profession, with entire credit to himself, and enjoys the merited confidence of all companies who have employed him.

As associate, east, Mr. Wm. B. Foster, jr., was appointed, a gentleman who has for years filled important stations, in connection with the state works, and who has proved himself an able and efficient officer.

The experience of the past summer has satisfied the Board that in the organization of this department they have nothing to regret.

The Board at an early day turned their attention to an object, which they deemed it incumbent on them to secure if possible, for which their constituents had manifested great solicitude, and took immediate measures to prevent the Baltimore and Ohio railroad company availing itself of the law passed by the Legislature of this state, granting to that company the right of constructing a road from Cumberland to Pittsburgh.

To effect this a subscription to the amount of three millions of dollars, and the payment of one million into the Treasury of the company, were required by the Act of Assembly, and to have fifteen miles of road put under contract for construction at each terminus of the Pennsylvania railroad, prior to the thirtieth of July, 1847. The instalments were therefore called payable on the first days of May and July, and were promptly met by the stockholders. These instalments, with that already paid at the time of subscription, amounted to nine hundred thousand dollars, and the deficiency was met by payments in anticipation of the fourth instalment from stockholders, who came promptly forward to a sufficient extent, some of whom paid up their stock in full.

In the month of July, contracts were made for the construction of the road the required distance, and on the second of August, the Governor issued his proclamation, declaring the law giving to the Baltimore and Ohio railroad company the right of way through Pennsylvania null and void.

The good effect of this measure upon the general interests of the company has been made strikingly manifest, by putting it in the offset in a state of high credit, and by imparting to it a public confidence which cannot fail to facilitate future subscriptions that may be necessary for the completion of the road.

The policy to be pursued by the Board in the management of this was plainly indicated.

The law requiring fifteen miles at each end to be put under contract was fulfilled, but at this point so unwise a course stopped.

With this exception, the attention of the Board was directed to the eastern end, with

a view of bringing into profitable use that portion of the road which would soonest make a return to the stockholders.

An examination of the different routes which had been indicated by former surveys and public opinion, led irresistibly to the conclusion that the Valley of the Juniata was on all accounts to be preferred, presenting greater facilities, easier gradients, and less distance, with the decided advantage of being brought into profitable use at a much earlier period than either of the others.

Accordingly it was determined to adopt and place it under contract as rapidly as it could be prepared by the engineers. Twenty miles were let in July, which are now rapidly progressing towards completion. Forty miles further to Lewistown will be let to contractors on the twenty-sixth of November, and the engineers are now actively engaged in locating the line, with a view of placing the remainder of the eastern division to the base of the mountain, under contract early in the Spring. As soon as the engineers have completed their operations, a report from the chief engineer, with an estimate of the cost, will be made and published for the information of the stockholders.

The surveys and location of the western division cannot be completed until early the ensuing summer, but sufficient information will be obtained from the surveys of this year to enable the engineers to give an estimate of the cost of the whole road, with considerable accuracy. The line of the road upon the eastern side of the mountain has been finally determined, and proves highly favorable. The whole length of the road from Harrisburg to Robinson's bridge, at the foot of the Allegheny, is one hundred and thirty-five miles, upon which there is no ascending gradient exceeding sixteen feet per mile to Lewistown, and twenty-one feet for the remainder of the distance, nor a descending gradient exceeding ten and a half feet per mile.

From Robinson's ridge, which divides the little Juniata from the Frankstown branch, north of Brush Mountain, the ascent of the Allegheny is commenced, and overcome (with the use of locomotive power) by a gradient of about eighty feet per mile in thirteen miles, without encountering any extraordinary difficulties. This work will be left for a future period, and in the mean time a junction will be formed with the Allegheny portage by a branch line, six miles in length, from Robinson's ridge to Hollidaysburg, or some point further west. From the summit of the Allegheny to Pittsburgh the line will pass over an uneven country, requiring maximum gradients of fifty feet per mile in both directions. The whole length of the road from Robinson's ridge to Pittsburgh will fall somewhere between one hundred and ten, to one hundred and twenty miles.

The general plan determined upon by the board is to proceed with the western section as soon as the eastern division is complete, unless means are provided to prosecute both simultaneously, and to bring them into use by connecting with the Allegheny Portage

while the mountain or middle division is in the course of construction.

From present prospects, the board anticipate being enabled to run their cars from Harrisburg to Lewistown before the close of the winter of 1848-49, and the winter following, with the means now at their command, to connect with the Portage at Hollidaysburg, which, with the completion of the western 15 miles, will give a continuous railroad communication between Philadelphia and Pittsburg, with the exception of 55 miles to be travelled by stages; and the board anticipate at that time a very large proportion of western travel over the road.

The importance of securing a supply of iron in time early engaged the attention of the board, and they were desirous of obtaining it from the mines of Pennsylvania. With this view, they offered to contract for a sufficient amount to afford an inducement to erect new iron works for its manufacture.

After some negotiations, they finally closed with the offer of David Reeves for 15,000 tons, the amount required for the eastern section, at \$60½ per ton, being about \$10 per ton less than the market price at that time on the seaboard. The amount required, and prospect of future orders, determined the bid, which was considered a very advantageous operation for both parties. Mr. Reeves has commenced the erection of his works in Lancaster county, and will be prepared to deliver iron in the month of June next, being the time it will be required for the track.

Since the period when this enterprise was first undertaken, a marked change has manifested itself in the public mind with regard to its feasibility and prospects of profit. At that period the subscription to the stock was considered by many as a patriotic endeavor to retain and extend a trade which legitimately belonged to this city, and which was about to be wrested from her grasp by her enterprising rivals.

A glance at the subscription book attests the existence of this feeling, for out of some 2800 subscriptions near 1800 are for 5 shares and under. The books at that time were carried from house to house by the active friends of the road, who solicited even single shares, and the powerful aid of public opinion was brought to bear upon the city authorities to induce a large subscription, lest private enterprise should be inadequate to the task. Of the importance of the work to the true interests of the city and State no one ever entertained a doubt. If any had been entertained, the recent disaster to the State public works of Pennsylvania, must have removed it.

In a single night, the whole range of canal along the Juniata was swept by the flood; more than 20,000 tons of goods in transit left along its banks, to be wagoned east and west at a heavy expense, and the channel of communication between the east and west interrupted for near two months, leaving the country full of produce, coal and iron, unable to find an outlet to market for the next 6 months and materially interrupting the business prospects of the merchants both of Philadelphia and Pittsburg.

Such an occurrence, which the canal must at all times be subject to, has awakened the attention of the whole country to the necessity of pressing the work forward with the utmost vigor.

As an investment, this work is now viewed in a very different light from what it was a year ago.

Since the road has been seriously undertaken, with an earnest determination to bring it rapidly to a completion, its prospects have been more carefully scrutinized, and every fact which has been developed in the public prints, has gone to show that when in operation, it has a field open to it which no other enterprise of the kind presents.

Already the citizens of Ohio are combining their energies to extend our line through the fertile valleys of that State, and form a continuous way from the Atlantic to the Far West. Even from Pittsburg alone a vast trade must open to it, which has never been taken into account, in the single item of cattle, of which more than 50,000 are annually driven through Pennsylvania from Ohio, and which can be transported over the road at a large saving to the drover, yielding abundant profit to the company.

That the Pennsylvania railroad must yield an immediate profit on the investment is generally admitted by all well informed persons and we may now look to capital seeking investment, and not to patriotism to furnish it.

The manifest advantages to be derived from an early completion of the whole line call for a recommendation from the board that immediate steps be taken to raise sufficient capital to render it available in the shortest possible period.

The amount now subscribed exceeds three millions of dollars, which, it is safely calculated, is sufficient to put the road in operation to the base of the Allegheny, and connect it with the State Portage. This portion of the work is now being constructed as rapidly as is consistent with judicious economy.

The western section may be considered as a distinct work, and can, without detriment to the interest of the company, be put under contract at the same time as the eastern, thus effecting a saving of nearly two years in the completion of the whole. An united effort should, therefore, be made both in the east and the west, in order to enable the board to commence the work as soon as the surveys are complete.

It is fortunate that the unfriendly feelings which divided us from our western fellow citizens have been allayed, on both sides by time and calm reflection. Both parties now see that their interests are inseparably united and we have the strongest assurances from prominent persons who were most active in forwarding other interests that they are ready to unite with us, and give their hearty co-operation. Measures are now in progress in Pittsburg which it is hoped will lead to a large subscription from the citizens and authorities of Allegheny county.

To place the company in a strong position and unite all interests to its behalf, some legislation will be important, which, it is sup-

posed, will not be difficult of attainment, as many interests which heretofore were adverse will now act in accordance with the wishes of the company.

A careful examination of the law will be made prior to the ensuing session of the legislature, with a view to such minor changes as will add to its efficiency. The board now call the attention of the stockholders to two important amendments for their sanction.

One, which will materially affect future subscriptions, is the supplement presented and asked for at the last session, granting to municipal bodies the right to subscribe to the stock of the company, a law which would, under certain restrictions, give the company the right to accept the certificates of loan issued by municipal corporations in payment of instalments for stocks will have a most beneficial effect upon our subscriptions.

The tenth section of the charter of the company provides, that after bona fide contracts shall have been made for the immediate construction of 15 miles of road at each end thereof, a sum equal to five per cent. per annum on the capital stock of said company actually paid in shall be estimated and paid to the several holders thereof, on account of the amounts payable by them respectively for stock subscribed, to be charged to the cost of construction.

This clause was doubtless intended by the legislature to place the original stockholders upon a just footing in point of interest on their capital with those who might subscribe at later periods, who would otherwise participate equally in advantages accruing from the early subscriptions of their more enterprising neighbors. This intention was equitable, and tended to induce early subscription but does not meet the exigencies of the case.

The consideration of this clause has led to an inquiry into the policy of paying interest upon all subscriptions semi-annually in money, from the day the instalments are required to be paid, with a view not only of inducing subscriptions, but also of placing all stockholders upon equal ground. The objection that may be urged, that the company will pay out as dividends that which it has not earned, will not bear the test of scrutiny.

It is perfectly true that the company has earned no money to divide; but, whether the interest upon the capital paid in while the road is making is sunk, or appears only on the private books of the shareholders, or whether it is credited on the books of the company on account of future instalments to be paid, or whether it is actually paid out, and new stock subscribed to meet the demand, the effect is the same. For in either case interest is an element in the cost of construction, and must be added to the capital expended. By this latter course the effect produced is, that the capital stock, when the road is finished, represents exactly the cost, principal and interest, and every shareholder, early or late, is placed upon the same footing.

In considering this question, it is well to take warning from experience, and compare the practice in Pennsylvania with that of other states.



The large public works of this state constructed by private means, it is believed, almost without exception, have been undertaken upon inadequate capital. Their projectors have raised sufficient funds by subscription for the commencement, and trusted to loans, at fixed interest, for the completion, hoping to obtain sufficient profit to pay off the debts and give excessive dividends to the shareholder.

The result of this policy has been almost universally a disappointment. The property of the stockholders has, in many cases, been sacrificed to pay an interest to loanholders. Money has been raised at usurious interest by the sale of bonds below their par value; and in cases where the works would have paid a fair remunerating profit if they had been constructed at their fair cash cost, they now labor under an accumulation of debt, which absorbs all the profit of the concern to pay the interest. Hence it is that capitalists in this city are backward in entering into new projects of public improvement, as their confidence in success and early returns is much shaken [by the policy which has heretofore been pursued.

The example drawn from the practice here should be avoided, and the Pennsylvania railroad carried through upon its legitimate capital without debt, and this can only be accomplished by the payment of a moderate rate of interest to shareholders, during the progress of the work. Parties may not be found to the required extent who are willing or able to forego their income, while so large a work is in the course of construction, but if an income is regularly paid, any reasonable amount of capital may be obtained for a road which must, when finished, pay a remunerating profit.

It is fortunate that our work is of such a nature that it will not long require the exclusive use of capital to pay the interest, because every section, when finished, will bring in immediate returns in aid of the interest paid. A considerable profit will accrue when the road is in operation to Lewistown, and in another year, when it is connected with the state road at the Allegheny portage, the income will be still further increased in proportion to the cost, and it is doubted, whether the semi-annual payments for interest will ever prove a very serious burthen.

The line of policy now recommended by the Board, is to ask the passage of an amendment to the charter, requiring the company to pay semi-annually an interest equal to six per cent. per annum upon all instalments as called for, (a charge of one per cent a month, being now provided upon delinquencies,) which interest is to be charged to cost of construction, and to credit the same account with all earnings until they amount annually to a sum sufficient to pay dividends to that amount.

In recommending the payment of interest, the Board do not propose any new experiment. This plan is sanctioned by the practice of English companies, as well as those of New York and Massachusetts, and has been followed by the beneficial results.

Although it is understood that no provision exists in the charters granted in these states for the payment of interest, yet for the last six years such payments have been voluntarily made by all companies, under a conviction of the policy and equity of the measure, and it is found that it not only has the advantage of securing prompt payments from the stockholders, but it permits persons of limited means to invest in these stocks, with a certainty of receiving their income regularly from the time of such investment.

The ultimate effect has been that all the roads but one in Massachusetts have been built upon their capital stock, only a single company have been obliged to have recourse to loans, to complete their road.

In New York it is understood that the same course obtains, and that the Hudson river company pay to the shareholders an interest of seven per cent. as the work progresses.

In looking forward to the trade likely to accrue from an extension of the Pennsylvania road to the west, and in view of meeting the efforts that might be expected to divert that trade, the board thought it expedient that a committee should visit Ohio during the past summer, in order that they might understand the interests that would probably be brought to bear upon their future prospects. Accordingly they delegated Messrs. J. R. Ingersoll, Ralston, Spangler and Cresson, as a committee for this purpose. The report of that committee was highly satisfactory, and a correspondence was opened by them with intelligent and enterprising citizens, interested in works of internal improvement in various parts of the State. From the inquiries of the committee, it is understood that an active spirit of enterprise has been awakened in that State, and that the most strenuous exertions are making to reach the Atlantic by railway communication.

The enormous increase of trade consequent upon the demand for provisions and bread stuffs upon the Atlantic coast for shipment, has satisfied their citizens that channels of communication, liable to interruption for a large portion of the year, will not meet the demands of commerce, and hence their attention is turned to means of transportation upon which they can rely with certainty at all seasons.

Two great chains of railroad are contemplated through the State of Ohio, towards which decided measures have been taken.—The first and most forward in its prospects, is that leading from Cincinnati through Columbus, and thence eastward till it touches the Ohio river, at some point where it can connect with a railroad to the seaboard.

This road connects with the Cincinnati and Sandusky road, which is already in operation as far as Xenia, or Springfield, and passes through Columbus and Newark, to the mouth of Licking river. From this point two routes present themselves, one to Wheeling through Zanesville, and the other in a northeastern direction, till it strikes the river about Wellsville. The road for a part of the distance is

in the hands of organized companies, who will carry on their work by local means, until they come to the point of divergence.—This road is of too important a character to stop at such a point, as it will bring over it for a large part of the year most of the travel south of Cincinnati. Its movements from the mouth of Licking river must be governed by the probability of reaching the Atlantic in the shortest probable period. The tendency of trade from the country through which this road passes, is from long habit to Baltimore, a tendency created by the existence of the national road, and if, on arrival there, it shall be seen that the Baltimore and Ohio road is likely to reach the river first, the probability is in favor of the Wheeling route. If on the contrary it shall appear that the Pennsylvania road can first be finished, we may look with confidence to its being the recipient of that great trade.

In taking Columbus as the starting point, the distance estimated to Philadelphia is a few miles less than via Wheeling to Baltimore, and as the mass of travel tends to the north, the distance between Baltimore and Philadelphia is saved to the traveller. It is believed to be a fact, that four-fifths of the through travel over the Baltimore and Ohio road, take the line to Philadelphia without stopping at all in that city.

With such a prize as the southern Ohio trade in view, the energetic prosecution of the Pennsylvania road is of the utmost importance as our success depends upon rapidity of motion. An additional argument is brought home to every stockholder to induce him to assist in placing the company in a position to prosecute the western section simultaneously with the eastern.

Still more important to the interest of this road is the Central or "Back-bone" line, as it is aptly termed, through the table lands of Ohio, which has been projected and is in a fair way of prosecution.

This road will traverse almost in a straight line, the rich bed of wheat lands which extends through the whole State, and embraces a fertile and thickly populated region, and crosses every railroad that can be made from the south to the lakes. The movements towards the construction of this road have already commenced with spirit, and will be conducted with energy.

The country which it traverses is sufficiently populous and rich to make it, and from the peculiar topography of that region, its cost will be moderate and its profits large. It is difficult to appreciate the extent of trade and travel that it will control. It commands a vast amount of trade which now finds its way to the lakes, and borders for its whole length, the rich grazing country of the north of Ohio.

From its geographical position, this trade must come to Philadelphia, and may be looked to with confidence, both as a profit to our road and an increase of the trade of the city. Already a portion of it from Wellsville west is under contract. Charters exist which will cover a large portion of the ground, and application will be made to the legislature of

Ohio during the ensuing winter, to connect these charters, so as to give the whole line from the eastern to the western borders of the State, into the hands of one company, who will at once commence their operations.

In view of the construction of these roads, which are destined at a very early period to throw upon the Pennsylvania railroad a trade of great magnitude and value, the board turned their attention to the connection which must be made between their western terminus and the Ohio State line, and being satisfied that the true policy of the citizens of Pittsburgh is to unite cordially and with their whole strength in the completion of the road connecting the two cities, they took upon themselves the responsibility of guaranteeing to their fellow citizens of that city that this connection should be made as soon as the requirements of the trade should make it advisable. And they still hope that the same view will be taken by our brethren of the west, and they will yet receive their hearty co-operation.

The treasurer's report, herewith presented, will exhibit the state of the finances. Balance in hand, \$953,303 86.

It is hoped that, with the new contracts about to be made, they will soon be able to expend these funds with rapidity. No calls will probably be made until the ensuing spring, of which due notice will be given.

The board have to regret the loss from among their number of an ardent friend of the road, Henry C. Corbit, Esq., who was compelled to resign in the month of May from ill health. The vacancy was filled by the election of Jesse Godley, Esq., on the seventeenth of that month.

In surrendering this important trust to their constituents, the board cannot refrain from mutual congratulations upon the auspicious commencement and present prospects of a work destined, at no distant period, to form a main connecting line between the west and the Atlantic, and add largely to the trade and prosperity of the State and city.

All of which is respectfully submitted.

By order of the board.

S. V. MERRICK, *President.*

Office Pennsylvania R. R. Co.,  
Philadelphia, 30th Oct., 1847.

#### THE TREASURER'S REPORTS,

Amount received from stockholders in payment of	
First instalment .....	\$303,725 00
Second " .....	298,940 00
Third " .....	296,955 00
Fourth " in advance .....	50,815 00
Fifth " .....	640 00
Sixth " .....	200 00
Seventh " .....	100 00
Eighth " .....	50 00
Ninth " .....	50 00
Stock in full .....	66,250 00

\$1,017,725 00

#### And expended in

Organization and expenses ..	10,518 99
Engineering .....	23,116 11
Graduation .....	10,166 03
Real estate .....	1,575 00
Right of way, fencing & dam ..	5,413 15
In hands of agents .....	13,631 87

64,421 14

Balance in hands of the company .... \$953,303 86

GEORGE V. BACON, *Treasurer.*

Philadelphia, October 30, 1847.

#### Gauge, or Width of Track for Railroads.

*Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Morton, Esq., Chief Engineer.*

Continued from page 776.

There is a strong objection on the part of most companies to their cars going a great distance off their road and beyond their immediate control, particularly when their own line is of much extent having branches and a large local trade.

It is stated that the Boston and Worcester and Western railroad companies, whose roads form part of the line between Boston and Buffalo, will not allow their cars to go west of the Hudson river, or to leave their own roads except to pass over the Greenbush and Troy road of six miles in length, for the purpose of receiving the freight transferred to them from the cars of other companies west of Troy.

The inconvenience of exchanging cars are represented, by persons who have had much experience on roads where it takes place, to be very great, and the cost of repairs very considerably increased. Cars furnished by so many different corporations, often differ materially in their construction, their strength, the ease with which they run and the amount of service they will perform without extensive repairs.

They are not subject to that constant and careful inspection, in passing over so many roads and such long continuous journeys.

Small repairs are more apt to be delayed till the defect becomes serious, and consequently the cost of making it good much increased.

Defective cars are often neglected from a desire that they may be returned to the company to whom they belong, for the necessary repairs, and this will often be the cause of serious accidents and at all times of increased expense.

The regulations in regard to the inspection and prompt repair of cars, cannot be too rigidly and strictly carried out, for a little remissness is often the cause of serious results.

With reference to the transfer of freight, there are many strong objections and ordinarily it should not be permitted, but even this will for very long lines under certain circumstances, I believe, be found preferable to an interchange of cars. There are many kinds of freight which may be transferred from one conveyance to another with great despatch and economy.

The article of flour which will constitute a most important article of freight on your road, I am informed on good authority, is transhipped from cars to vessels at Detroit, at the rate of one shilling for 100 bbls. Freight is transhipped at Albany, from canal boats to barges, at the rate of two pence per ton.

At other points in the United States, where a large amount of merchandize is to be transhipped, it is done with great economy by machinery propelled by steam, and it is believed that improvements will be made for the transfer of freight on railroads, that will materially reduce the cost, and render it on

every account far less objectionable than at present.

It is simply a question of cost, and if facilities of transshipment are such as to make the cost and inconveniences no more than the difficulties and expense resulting from an extended interchange of cars, I believe it will be adopted in preference.

Much has been said about the difficulty of transferring cattle and other live stock from one car to another. But every one knows who has had any experience in the business, that with suitable arrangements there is no practical difficulty and necessarily but slight delay.

All that is required in loading cattle in the first instance into cars, is to have a yard parallel with the train of cars, with inclined passage ways leading to, and on a level with the floor of the several cars, through which cattle are readily driven on to the cars. So in transferring cattle from one train to another, it is only necessary that the trains should stand parallel, and opposite each other with an intervening platform, and passage ways provided, through which cattle are as readily driven as they would be through a lane or a narrow street.

The same operation would effect the transfer of all kinds of live stock with equal facility. Live stock is in fact the cheapest of all kinds of freight for transshipment.

The time occupied in doing this with such arrangements as should always be provided, would not be greater than is now often required at stations in loading or unloading freight where no change of cars takes place.

There would be little difficulty in transferring several kinds of freight without breaking bulk either by removing the car bodies, or by the use of boxes, both being effected with steam cranes or other machinery.

In the evidence before the gauge commissioners it is stated by an engineer (not connected with the broad gauge interest) of great experience, not only in the construction of railways, but in the transfer of freight by both the above methods, that "there was no difficulty whatever in doing it." And he further states that, on a large scale "the cost would not exceed half a penny per ton."

On the main line of the Pennsylvania improvements, freight is transhipped in crossing the Allegheny mountains from the canal to the railroad on one side, and from the railroad to the canal on the other side of the mountain, without breaking bulk. A transshipment takes place on the main line of the New York canals at Albany, where over one million of tons arrive annually, and in fact transshipments occur on all the leading routes from the seaboard west.

Wherever a transfer of merchandize is necessary or advisable which will often occur for various reasons in an extensive country, there will always be abundant means to effect it expeditiously and economically.

But in reference to the Passumpsic branch of your road, it is not simply a question of the policy of transferring freight from one gauge to another. There are other circumstances connected with this branch which



have an important bearing. The amount of the freight that will be likely to pass this branch, and the nature of the business generally, enter into the consideration of the subject.

Your road, as stated in another part of this report, is designed to furnish the shortest and best communication with the seaboard; and with a view to avail yourselves of all the natural advantages of your route, to furnish to the public the conveniences and facilities of transportation which the nature and extent of the business to be done require and to enable you to compete successfully with rival routes, you deemed it important to give to your road an enlarged capacity.

Now the question arises whether the connection with this branch, situated, as it is, holds out sufficient inducement in the amount of its business for the attainment of which it would be advisable for you to sacrifice the great and manifest advantages of your main line.

The distance as before stated from Montreal to the seaboard by this branch, and the roads to connect with it, will be about 107 miles longer than by the main line to Portland.

The great number of corporations on this route, over whose roads the business must pass, and the difficulties attending it have also been alluded to, such as the separate management of each road, consisting of the officers, agents and clerks of each company, each furnishing its own power with engine men, firemen, conductors, etc., whether the road is 20 or 120 miles in length.

The terminus on the seaboard is not at the open harbor of Boston, but in the rear of the city where freight destined for a foreign market must be subject to the delay and embarrassment of vessels approaching it through numerous draw bridges and accumulation of ice in winter, or be carted across the city.

These are peculiarities which have a direct tendency to increase the cost of transportation, and should they be found so great as to increase it materially it is a question whether any very large amount of through freight will take this route.

With this great difference in distance and the other disadvantages above mentioned, there can be no doubt that the cost of transporting all descriptions of freight from Montreal to the seaboard by the branch route will be very much greater than by your main line.

As it regards the curvatures and grades of the two routes, if any difference exists, it is but slight, both may be regarded as favorable.

You are aware however that on the Portland line a very large portion of the distance is nearly level or descending towards the seaboard.

There are but two corporations comprising this line, whose charters were granted by the respective governments with a view to their being united as one road, and the sole object of these corporations, through all the incipient stages of the work, and up to the present time has been to consolidate the interests and

render the roads identical. The same system as it regards their location, the plan of construction, the width of track, and the general system of conducting the business of transportation, when these roads shall have been finished, has been mutually agreed upon by the two companies.

The length of road to be built by the two corporations is nearly the same, each being a favorable distance to operate economically, and uniting at the same time at the boundary line between the two countries.

The terminus at the seaboard is at one of the best harbors on the Atlantic coast; it is large and capacious, easy of access and is never closed with ice. The terminus is so located as to be parallel with the main harbor, presenting an uninterrupted wharf of half a mile in extent, along which every class of vessels may be safely moored to discharge their cargoes and to receive directly from the cars their return freight.

These are the leading features of your main line, and they are alluded to not with the view to draw an invidious comparison or a desire to detract in the least from the merits in the least from the merits of the line which is proposed to form a connection with your branch, for I regard it as an important line, and one which will add very considerably to the revenue of your road.

But it is with the view that the subject of transportation of through freight may be more fully understood, and that you may judge more accurately as to the probable route the mass of the business will take, and the bearing this may have on the gauge of your road and your ability to compete other lines, whose object is to turn the trade from the St. Lawrence before it reaches you.

The efforts that are now making to deprive you of the trade to which you are naturally entitled by your position, are such that it not only effects in the greatest degree the interests of the stockholders in your road, but the whole business population of the lower province.

It is a subject of serious consideration with you whether it will be more for the interest of your stockholders and the public at large to adopt a narrow gauge for the sake of uniformity with foreign lines which cannot add to your ability to compete for this trade, or to adhere to one of the great advantages which will give your main line the superiority beyond a question.

Owing to the greatly increased distance and other disadvantages of this branch as contrasted with your main line to Portland, it does not appear likely that a large amount of merchandize forwarded for shipment to England or to a foreign market, will pass over this road.

To illustrate the subject, we will suppose that the distance via this branch is only 370 miles.\* The distance to Portland as now

\*The distance as given in the printed reports of the several companies, together with the distance from the boundary to Montreal gives a total of 387 miles between the latter place and Boston by this route.—This, however, may be hereafter reduced by new lines, and I have assumed above that the distance will be only 370 miles.

surveyed by the longest route, is 280 miles, assuming that an average charge of 14d. per ton per mile is made on freight, the cost of each ton carried to Boston over this branch will be

£1 18 6  
And each ton carried to Portland  
via the main line will be . . . 1 0 2

Giving a difference in cost of . . . £0 9 4  
per ton in favor of the main line, not including truckage or extra expense at Boston in reaching vessels.

The question of transshipment as it regards the mass of freight, has with this view of the subject but little bearing, for it is supposed that generally it would take the cheapest route, and should the advantages of a wider gauge and a less number of corporations lessen the cost of transportation, the above difference in favor of the main line will be still further increased.

It may be thought, by some persons unacquainted with the circumstances, that as Boston exceeds Portland in population and in business, that the advantages of making shipments would be greater there than at the latter port.

When it is recollected, that the State of Maine exceeds any other State in the Union in the number and capacity of her harbors, and in the tons of shipping which she now annually puts afloat, there need be little apprehension about the facilities of making favorable shipments, when your road shall have been extended to that port. And, as before remarked, the advantages of Portland harbor as regards its capacity, safety, and freedom from ice in the winter, its position and accessibility, and the far greater economy with which it is reached from the interior, are such as to give it a decided superiority, as connected with your trade, over any other port of the eastern States.

Adopting a wide track does not cut off your trade from the direction of this branch, for it is shown that there is a transshipment on the main line of roads passing through the State of Massachusetts, and New York, all having the same gauge, and forming the most important line of railway communication in the United States.

The circumstances of these roads are similar to yours in connection with this branch, and the other lines forming its extension to the same point in the State of Massachusetts, and they are such as at present to render a shipment necessary.

Notwithstanding this, a large business has been done; and why should not the business of the Passumpsic branch be done with equally favorable results.

It is alleged, that a large business would be done with Boston, and that the adoption of a wider gauge cuts off the connection with the line leading to that city, and therefore does not allow a choice of markets.

On a full view of the subject, I believe that this conclusion will be sustained, but that the adoption of a wider track for your road will not only allow an equal choice of markets, but lessen the cost of reaching these markets.

To be Continued.

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MANUFACTURERS OF ALL KINDS OF

**RAILROAD CARS,**

SUCH AS  
PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —  
SNOW PLOUGHS AND ENGINE TENDERS  
OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished  
at short notice; also, STEEL SPRINGS  
of various kinds; and

SHAFTING FOR FACTORIES.

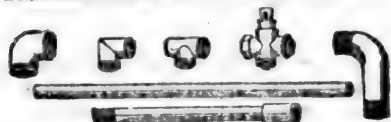
The above may be had at order at our Car Factory,  
REUEL DEAN,  
ELIJAH PACKARD, } SPRINGFIELD, MASS.  
ISAAC MILLS,

**TO RAILROAD COMPANIES AND BUILD-  
ERS OF MARINE AND LOCOMOTIVE  
ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 48 in calibre and 2 to 19 feet long,  
capable of sustaining pressure from 400 to 2300 lbs.  
per square inch, with Stop Cocks, T. L., and  
other fixtures to suit, fitting together with screw  
joints, suitable for STEAM, WATER, GAS, and for  
LOCOMOTIVE and other STEAM BOILER FIRES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—THE NEW JERSEY**  
Iron Company, Boonton, N. J., are now mak-  
ing Railroad Bars, and are prepared to execute or-  
ders for any required pattern. Apply to

**FULLER & BROWN, Agents,**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847. 10c

**CHILLED RAILROAD WHEELS.—THE**  
undersigned are now prepared to manufacture  
their Improved Corrugated Car Wheels, or Wheels  
with any form of Spokes or Disks, by a new process  
which prevents all strain on the metal, such as is  
produced in all other chilled wheels, by the man-  
ner of casting and cooling. By this new method of  
manufacture, the hubs of all kinds of wheels may  
be made whole—that is, without dividing them into  
sections—thus rendering the expense of banding un-  
necessary; and the wheels subjected to this process  
will be much stronger than those of the same size  
and weight, when made in the ordinary way.

**A. WHITNEY & SON,**

Willow St. below 13th,

Nov. 10, 1847. [tf.] Philadelphia, Penna.

**LAP—WELDED  
WROUGHT IRON TUBES**

FOR

**TUBULAR BOILERS,**

FROM 1 1/4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manu-  
facture as those so extensively used in England,  
Scotland, France and Germany, for Locomotive,  
Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

1y25

28 Platt street, New York.

**PATENT RAILROAD, SHIP AND BOAT**  
Spikes. The Troy Iron and Nail Factory keeps  
constantly for sale a very extensive assortment of  
Wrought Spikes and Nails, from 3 to 10 inches,  
manufactured by the subscriber's Patent Machinery,  
which after five years' successful operation, and now  
almost universal use in the United States (as well  
as England, where the subscriber obtained a patent)  
are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes  
having countersink heads suitable to holes in iron  
rails, to any amount and on short notice. Almost  
all the railroads now in progress in the United States  
are fastened with Spikes made at the above named  
factory—for which purpose they are found invaluable,  
as their adhesion is more than double any com-  
mon spikes made by the hammer.

All orders directed to the Agent, Troy, N. York  
will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by J.  
& J. Townsend, Albany, and the principal iron mer-  
chants in Albany and Troy; J. L. Brower, 222 Water  
St., New York; A. M. Jones, Philadelphia; T. Jan-  
viers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward  
their orders as early as practicable, as the subscriber  
is desirous of extending the manufacturing so as to  
keep pace with the daily increasing demand.  
ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Stand-  
ing Ship Rigging, Mines, Cranes, Tillers etc., by  
**JOHN A. ROEBLING, Civil Engineer,**  
Pittsburgh, Pa.

These Ropes are in successful operation on the  
planes of the Portage Railroad in Pennsylvania, on  
the Public Slips, on Ferries and in Mines. The  
first rope run upon Plane No. 3, Portage Railroad,  
has now run 4 seasons, and is still in good condi-  
tion. 92v11y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN**  
Railroads, Railroad Directors  
and Managers are respectfully in-  
vited to examine an improved Spark  
Arrester recently patented by the un-  
dersigned.

Our improved Spark Arresters  
have been extensively used during the  
last year on both passenger & freight  
engines, and have been brought to  
such a state of perfection that no an-  
noyance from sparks or dust from the  
chimney of engines on which they  
are used is experienced.

These Arresters are constructed on  
an entirely different principle from any heretofore offered to the public.  
The form is such that a rotary motion is imparted to the heated air,  
smoke and sparks passing through the chimney, and by the centrif-  
ugal force thus acquired by the sparks and dust they are separated from  
the smoke and steam, and thrown into an outer chamber of the chimney  
through openings near its top, from whence they fall by their own  
gravity to the bottom of this chamber; the smoke and steam passing  
off at the top of the chimney, through a capacious and unobstructed  
passage, thus arresting the sparks without impairing the power of  
the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use  
on the following roads, to the managers and other officers of which we are at liberty to refer those who  
may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintend-  
ant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and  
Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown  
Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wil-  
mington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.;  
W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensse-  
laer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio  
Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Mo-  
tive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabeth-  
town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah,  
Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad,  
Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, Presi-  
dent Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whit-  
ney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasona-  
ble terms. Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail  
Works have always on hand, of their own manu-  
facture, a large assortment of Railroad, Ship and Boat  
Spikes, from 2 to 12 inches in length, and of any form  
of head. From the excellence of the material al-  
ways used in their manufacture, and their very gen-  
eral use for railroads and other purposes in this coun-  
try, the manufacturers have no hesitation in warrant-  
ing them fully equal to the best spikes in market,  
both as to quality and appearance. All orders ad-  
dressed to the subscriber at the works, will be prompt-  
ly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of  
Erastus Corning & Co., Albany; Hart & Merritt,  
New York; J. H. Whitney, do.; E. J. Etting, Phila-  
delphia; Wm. E. Coffin & Co., Boston. ja45

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The  
undersigned receive orders for the following articles,  
manufactured by them of the most superior descrip-  
tion in every particular. Their works being exten-  
sive and the number of hands employed being large,  
they are enabled to execute both large and small or-  
ders with promptness and despatch.

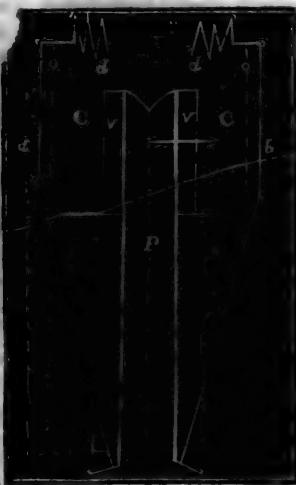
**Railroad Work.**

Locomotive steam engines and tenders; Driving  
and other locomotive wheels, axles, springs & flange  
tires; car wheels of cast iron, from a variety of pat-  
terns, and chills; car wheels of cast iron with  
wrought tires; axles of best American refined iron;  
springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery  
of all descriptions and of the most improved patterns,  
style and workmanship.

Mill gearing and Millwright work generally;  
hydraulic and other presses; press screws; callen-  
ders; lathes and tools of all kinds; iron and brass  
castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
a45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

## CAR WORKS, CAMBRIDGEPORT, MASS.

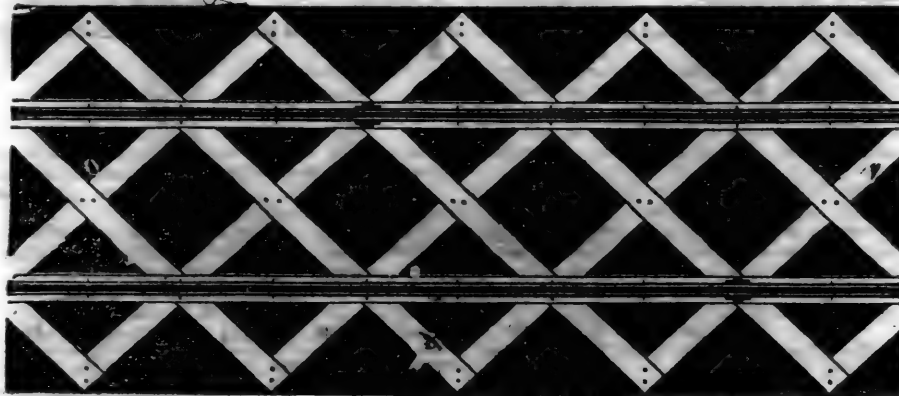


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

### THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trelis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trelis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trelis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.			
1,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	686 96	
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,493 ft. b.m., at \$13 =	57 21	
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25	
Workmanship free of patent charge.....		600 00	

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.

Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia. 33f

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
ly10 near Third,

below Walnut,  
Philadelphia.



**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Rail-

road Depots, etc.

ANDREW MENEELY.

West Troy, May 12, 1847.

ly•21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,

ly2f

Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,

Accts.

ly48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

**RAILROAD IRON AND LOCOMOTIVE Tyres** imported to order and constantly on hand by A. & G. RALSTON

Mar. 20th 4 South Front St., Philadelphia.

**THE NEWCASTLE MANUFACTURING Company** continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY, 245 President of the Newcastle Manuf. Co.

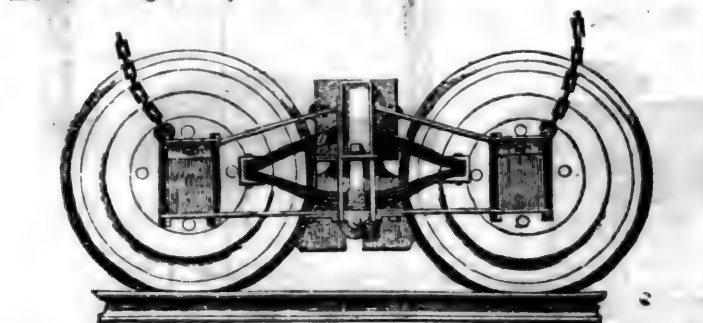
**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom: Iron only. Address

SAM'L KIMBER & CO.,

Willow Street Wharf,

Philadelphia, Pa.

# RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have tried it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.			HEMPEN ROPES.		CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.	Weight per fathom.	Diameter of iron.	
	INCH.	LB. OZ.	INCH.	LB. OZ.	LB.	INCH.	Tons.
11	4½	13 5	10	24 -	50	15-16	20
13	3½	9 3	8½	16 -	27	11-16	13½
14	3½	6 11	7½	12 8	17	9-16	10½
15	2½	5 2	6½	9 4	13½	1-8	7½
16	2½	4 3	6	8 8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.  
Factory, 9th street, near Coates, cor. Melon st.  
Office, No. 3 North 5th street,  
Philadelphia, Pa.

1y35

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee  
G. A. NICOLLS,  
Reading, Pa.

ja15

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 30 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,]

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

[Signed,] G. A. NICOLL,

Sup't Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,]

T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

[Signed,]

JOHN LEACH,

Jamaica November 12, 1845.

1y19

Sup't Motive Power.

## THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorus,

Glendon,

Spring M.I. and

Valley,

} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 19th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 11f

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

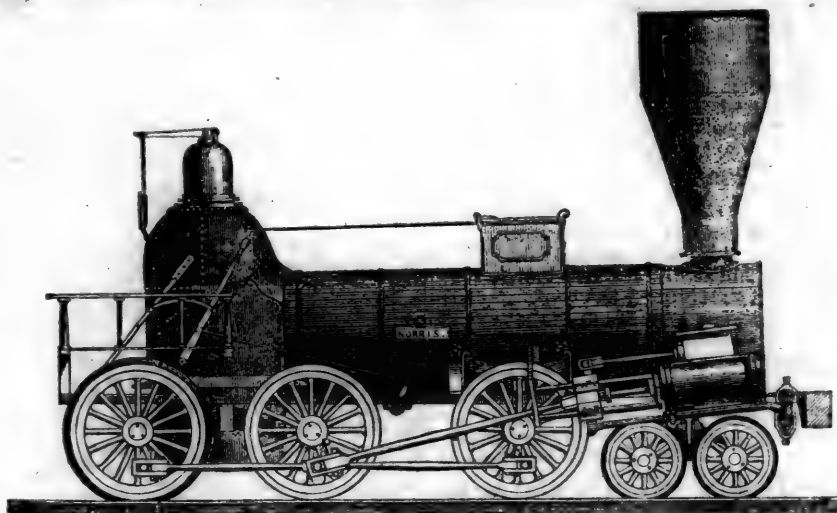
PETER COOPER 17 Burling Slip.

New York.

1y10



# NORRIS' LOCOMOTIVE WORKS. BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



**MANUFACTURE** to order Locomotive Steam Engines of every plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish. Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality. Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.  
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 28ct

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,  
Philadelphia.

ROBERT NICHOLS, Agent,  
No. 79 Water St., New York. 26ct

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 28ct

J. BALL & CO.

**K**EARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire,	} New York.
Peter Cooper,	
Murdock, Leavitt & Co.	} Philadelphia, Pa.
J. Triplett & Son, Richmond, Va.	
J. R. Anderson, Tredegar Iron Works, Richmond, Va.	} Providence, R. I.
J. Patton, Jr.	
Colwell & Co.	} Newark, N. J.
J. M. L. & W. H. Scovill, Waterbury, Conn.	
N. E. Screw Co.	} Newark, N. J.
Eagle Screw Co.	
William Parker, Supt. Bost. and Worc. R. R.	} Newark, N. J.
New Jersey Malleable Iron Co.	
Gardiner, Harrison & Co.	} Newark, N. J.

25,000 to 30,000 made weekly. 35

**PATERSON RAILROAD** Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave  
Paterson at New York at  
8 o'clock a.m. 9 o'clock a.m.  
11 o'clock a.m. 12 1-4 o'clock p.m.  
4 o'clock p.m. 5 o'clock p.m.  
On Sunday.  
8 o'clock a.m. 9 o'clock a.m.  
4 o'clock p.m. 5 o'clock p.m.  
Office 75 Courtlandt St. 25ct





**CENTRAL RAILROAD-FROM SAVAN-**

nah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally...	50 cts. per hundred.
On measurement goods .....	13 cts. per cubic ft.
On brls. wet (except molasses and oil) .....	\$1 50 per barrel.
On brls. dry (except lime) ...	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery .....	40 cts. per hundred.
On hhd. and pipes of liquor, not over 120 gallons .....	\$5 00 per hhd.
On molasses and oil .....	\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,  
Gen'l. Supt. Transportation.

Way points in proportion.  
**PITTSBURG, GETTYSBURG AND  
 HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg ..... \$9  
Or via Lancaster by railroad. .... 1  
Through tickets to Harrisburg or Gettysburg. .... 3  
In connection with the afternoon train at 3 o'clock,  
a horse car is run to Green Spring and Owning's  
Mill, arriving at the Mills at ..... 51 p.m.  
Returning, leaves Owning's Mills at ..... 7 a.m.

D. C. H. BORDLEY, *Sup't.*  
Ticket Office. 63 North st.

**SOUTH CAROLINA RAILROAD.—A**  
 Passenger Train runs daily from Charleston,  
 on the arrival of the boats from  
 Wilmington, N. C., in connection  
 with trains on the Georgia, and Western and Atlantic  
 Railroads—and by stage lines and steamers connects  
 with the Montgomery and West Point, and the  
 Tusculumbia Railroad in N. Alabama.  
 Fare through from Charleston to Montgomery  
 daily ..... \$26 50  
 Fare through from Charleston to Huntsville,  
 Decatur and Tusculumbia..... 22 00  
 The South Carolina Railroad Co. engage to re-  
 ceive merchandize consigned to their order, and to  
 forward the same to any point on their road; and to  
 the different stations on the Georgia and Western  
 and Atlantic railroad; and to Montgomery, Ala., by  
 the West Point and Montgomery Railroad.

JOHN KING, Jr. Agent.

**CENTRAL AND MACON AND WEST-**  
ern Railroads, Ga.—These Roads with the  
Western and Atlantic Railroad  
of the State of Georgia, form a  
continuous line from Savannah to Oothcaloga, Ga.,  
of 371 miles. viz:

**THE WESTERN AND ATLANTIC**  
Railroad.—This Road is now in operation to  
Ootheloga, a distance of 80 miles, and connects  
daily (Sundays excepted) with the Georgia Rail-  
road.

From Kingston, on this road, there is a tri-weekly  
line of stages, which leave on the arrival of the cars  
on Tuesday, Thursday and Saturday, for Warrenton,  
Huntsville, Decatur and Tuscumbia, Alabama,  
and Memphis, Tennessee.

On the same days, the stages leave Ootheloga  
for Chatanooga, Jasper, Murfreesborough, Knoxville  
and Nashville, Tennessee.

This is the most expeditious route from the east to  
any of these places.

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings.....	To Atlanta.	\$0 50
	To Ortocaloga,	\$0 75

Freight may be paid at Savannah, Atlanta or Oothcaloga.  
F. WINTER, Forwarding Agent, C. R. R.

**NEW YORK AND PHILADELPHIA RAIL-**

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3 $\frac{1}{2}$  and 10 p.m., and Saturdays only at 10 p.m.—being a continuation of the

# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3 50	and \$3 00
" " Reading,	58	2 25	and 1 90
" " Pottsville	34	1 40	and 1 20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

### Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.  
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.  
The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 1/2 p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 1/2 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 1/2 p.m., 7 p.m., 12 1/2 a.m., night mail.

J. R. TRIMBLE,

2d Engineer and General Superintendent.

## GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA to DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—33 miles from Chattanooga, Tenn.

### RATES OF FREIGHT.

		Between Augusta and Dalton. 271 miles.	Between Charleston and Dalton. 408 miles.
1st class.	Boxes of Hats, Bonnets, and Furniture, per cubic foot.....	\$0 18	\$0 28
2d class.	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 40	0 65
	Cotton, per 100 lbs.....	0 45	0 7
	Molasses, per hogshead.	8 50	13 50
	" " barrel.....	2 50	4 25
	Salt per bushel.....	0 18	
	Salt per Liverpool sack..	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS,

Sup't. of Transportation.

Augusta, Ga., July 15, 1847.

441y

## RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon	and Decatur and intermediate points.	0 23 1/2	1 54	1 05	0 81	0 66
and Knoxville & intermediate points	0 23 1/2	1 54	1 10	0 76	0 61	0 46
and Chattanooga.						
Between Augusta	and Decatur and intermediate points.	40 24 1/2	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	40 24 1/2	1 70	1 20	0 80	0 65	0 50
and Chattanooga.						
Between Charleston or Savannah	and Decatur and intermediate points.	40 32	2 20	1 35	1 05	1 10
and Knoxville & intermediate points.	40 32	2 20	1 40	1 00	0 85	0 80
and Chattanooga.						

1st class.—Boxes of Hats, Bonnets and Furniture per foot.....  
2d class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovel, Spades, Seythes, Smiths' Bellows, Baskets, Tubes, Stiffers, Brooms and other light articles, per 100 lbs...  
3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron, Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.  
4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Limestone Oil, per 100 lbs.....  
Cotton. Per 100 lbs.

Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.; and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER.

Chattanooga, Tenn., July 1, 1847.

### REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.....	\$0 20
Second class, per 100 lbs.....	1 20
Cotton, per 100 lbs.....	0 55
Third class, per 100 lbs.....	0 60
Fourth class, per 100 lbs.....	0 50

## FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the Office is removed from New York to the FRANKLIN HOUSE, Philadelphia, where he will be always pleased to meet and greet them. They will not only find a pleasant Reading Room, with lots of foreign periodicals, treating of Railroads and Machinery, but they will always find good-sized and airy rooms—clean beds—and a well supplied table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,  
D. K. MINOR.

## BOUND VOLUMES.

Volumes of this Journal, for the Years 1838 to 1846, INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.

One or two COMPLETE SETS of the RAILROAD JOURNAL may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.

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## AMERICAN RAILROAD JOURNAL.

OFFICE AT THE FRANKLIN HOUSE,

105 Chestnut Street,

PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, in advance.

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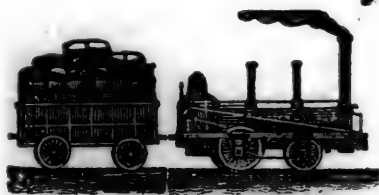
One page per annum.....	\$125 00
One column ".....	50 00
One square ".....	15 00
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# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY

AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No 51.)

SATURDAY, DECEMBER 18, 1847.

[WHOLE No. 600, VOL. XX.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, December 18, 1847.

### A WORD TO ALL.

**Missing Numbers.**—We again remind our subscribers that we shall cheerfully supply missing numbers for the current and past volumes—if we have them to spare—on receiving a list. It is much more easy to supply them now than at any future period.

If we have omitted to comply with any of the applications heretofore made for missing numbers, it has arisen from inability at the time—not from indisposition—it may therefore be worth the labor of furnishing a new list, as we have received many loose numbers of back volumes, from which they may possibly be supplied.

### Warming Railway Cars.

Tappen Townsend, of Albany, N. Y., has patented a mode of warming railroad cars. He says, "what I claim as my invention, and desire to secure by letters patent, is the application to railroad passenger trains, of the combination of the flues, connected by the elastic and flexible hose, with the openings and registers in the bottoms of the cars."

### Improved Method for Ascending and Descending Inclined Planes.

Mr. G. E. Sellers, of Cincinnati, Ohio, has invented a method of ascending and descending inclines, by having a central rail and driving wheel to grip the rail connected with a spring to give them the required adhesion on the rail. He also connects the driving wheels by toggle joint levers whereby the train is made to act upon the gripping wheels, and yet leaves the locomotive free in a measure without any strain, and in the event of the engine breaking the connection with the train, there are arms on each side that are caught by chain or joint

rods to arrest the progress, forwards or backwards of the train in a decent or ascent.

### New York Canals.

It is said that the amount of tolls on the canals of the State of New York this year will reach about \$3,650,000, being an increase of nearly a million of dollars over the tolls of last year—which will leave a large surplus to be applied towards enlarging the Erie canal and completing the Black river and Genesee valley canals.

The amount of tolls collected on the canals since the opening of navigation on the Erie canal in 1820 up to the present time—a period of 28 years—is over thirty-seven and a half millions of dollars.

The increase of business on the canals is shown by a comparison of the tolls received in 1826 (the year after the completion of the Erie and Champlain canals) with those of the present year, viz:

1826—tolls.....	\$762,003
1847—tolls.....	3,650,000

Increase.....\$2,887,997

It must not be forgotten, however, that the rates of toll have been reduced nearly one-half since 1826.

### Manufacture of Iron.

We copy the following description of Mr. Alexander Dickerson's plan of manufacturing malleable iron, from the Scientific American.

"Improvement in apparatus, by Alexander Dickerson, of Newark, N. J., for the manufacture of malleable iron. Patented 13th March, 1847. Re-issued 21st August, 1847. Claim.—What I claim as my invention, and desire to secure by letters patent, is: first, the method of manufacturing malleable or wrought iron direct from the ore, by means of a furnace, combining a chamber containing the charge of ore and fuel, with a closed forged fire below the same and communicating therewith, containing a continuation of the charge and the loup of wrought iron formed therein; said forge fire being provided with a large door for the introduction of a portion of the charge for shutting in and confining the charge, excluding the air therefrom during the process, removing the loup when formed, and clearing out the fire preparatory to another charge. Secondly, the use of moveable bars or slides in combination with the said closed forge fire and chamber, inserted and passing through the charge, to serve as a temporary grating to sustain the upper portion of the charge, or a new charge, while the lower portion is burning down and the loup is taken out."

### Lachine Canal.

The Montreal Herald gives the following account from a correspondent, of the opening of the Lachine canal. The writer says: "To-day, 19th instant"—but we are not certain whether it was in October or November—"the new lock here, called the Guard Lock, was opened for the first time, thus allowing large craft to descend to Montreal. The first craft locked down was a barge, the property of Hilyard & Walker, containing 1673 barrels of flour, besides some butter, etc.; the first locked up were three steamers, viz: the Beagle, Princes Royal and Cata-raqui. This lock, which may be said to be finished, measures 200 feet from gate to gate, 45 feet wide. Passing through the lock, you ascend a channel 120 feet wide and 10 deep; 2700 feet of this channel required excavation, which was principally effected this summer. On the left, as you ascend for about 3900 feet, is the coffer dam, which served to dry the channel till it was excavated, and now retains the water; it is constructed of two lines of cribs, each 12 feet wide, leaving a space of six feet between for a puddle chamber.

"It is partly surrounded by a receding stone wall rising above high water mark, and measuring about 22 feet on top. The rest of the wall is in a forward condition, and when finished will form an agreeable promenade to those living in or visiting Lachine."

### Tire for Railroad Wheels.

The following mode for making tire for railroad wheels has been patented by Messrs. Saunders, Bisset and Saunders. They say that the following is their mode of procedure, viz: "A pile of iron and steel is made as follows—first a large bar of iron, then a thin bar of steel, then another bar of iron, the latter being thin, and serving only as a protection to the steel from being burnt in the process of welding, the whole is then welded. The bar is then passed through a series of rollers giving the required shape to the tire, shrunk on to the wheel, and the thin plate of iron turned off to expose the steel to the surface."

### Iron Ship Ribs.

Mr. Richard F. Loper, of this city, has made an important improvement in ship building, whereby he uses hollow iron ribs, instead of timber, or solid iron ones, and binds them together by wooden planking, thereby combining strength with buoyancy and lightness. The ribs being hollow, he uses them as canals to lubricate the bolts and fastenings by pouring oil through the hollow ribs, thereby preventing the rotting of planks, and oxidation of the metal.

**Schuylkill Coal Trade.**

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, December 9, 1847.

	Tons. cwt.
From Port Carbon.....	6,977 00
" Pottsville.....	2,246 01
" Schuylkill Haven.....	11,190 12
" Port Clinton.....	2,960 10

Total for week..... 23,374 03  
Previously this year..... 1,283,709 04

Total..... 1,307,083 07

HENRY M. WALKER,  
Supt. Coal Tr. P. & R. R. Co.

SCHUYLKILL NAVIGATION.—Week ending December 9, 1847.

	Tons. cwt.
Pottsville and Port Carbon.....	756 13
Schuylkill Haven.....	381 00
Port Clinton.....	00 00

This week..... 1,137 12  
Previously..... 231,751 09

Total..... 232,889 01

**Items.**

The route for the Cocheco railroad, from Dover, N. H., to the line of the Montreal railroad, at Meredith, 44½ miles, has been surveyed, and found feasible. The total cost of the road, including engines, cars, etc., is estimated at \$1,032,000.

On the Michigan Central railroad, the receipts from September 24th, 1846, to October 31st, 1847, were \$534,205. The increase in the month of October, as compared with last year is equal to 33 per cent.

The receipts on the Georgia railroad for October, are said to have exceeded those of last year by \$1,889.

On the Mad River and Lake Erie railroad, \$38,120 were received from passengers in the year ending October 16th, and \$70,667 from freight. The length of the road is 134½ miles, of which 102 are in operation. We understand that within a short time 12,000 shares of company stock have been disposed of in the Boston market, the proceeds of which will enable the company to prosecute the work to completion without any further delay. The contracts for completing this road to Springfield have all been let—the work to be completed by the 1st of May, 1848.

We learn from the Eaton Register, that sufficient stock has been subscribed in the Eaton and Hamilton railroad to enable the corporators to organize, and proceed with their business. The distance from Eaton to Hamilton is 26 miles.

The Cincinnati Gazette observes that "these Preble county people will put the Cincinnati and Hamilton directors in the shade, if they do not soon bestir themselves to obtain the right of way, and place their line under contract."

The citizens of Montgomery, Ia., are making an effort to have a railroad constructed from Crawfordsville to intersect the Indianapolis and Lafayette railroad at Thorntown or Lebanon.

We learn from the Crawfordsville People's Press that a railroad meeting was held in that place on the 23d ult., Hon. Isaac Naylor in the chair, and T. W. Fry secretary. The meeting was severally addressed by S. C. Wilson, T. W. Fry and W. Bausman; and a committee, consisting of one person from each township, was appointed, with power to appoint aids, to visit different portions of the county and obtain subscriptions.

The great increase on the Little Miami railroad

has rendered a double track a matter of necessity; and the work will be commenced immediately.—About twelve hundred tons of iron have already arrived.

There has been a final decision upon the location of the road from Columbus—Xenia being the terminus and not Springfield. The Little Miami railroad company make the road out of Greene county about 16 miles. The road from Columbus to London will be placed immediately under contract, and the whole line pushed, as far as practicable, so as to have it completed at the earliest possible date. The Cleveland people are making active exertions to finish their link to Columbus, and thus Cincinnati has a good prospect of having two lines of railroads completed to the lake in two years—one terminating at Sandusky, the other at Cleveland. As the Mad river road will be finished early next season to Springfield, that will have the start.

The Connecticut river railroad company are engaged in surveying a route for a branch road to Amherst. The Northampton Gazette says that the survey on one line has been completed, and the distance found to be six and a half miles. The route is a very feasible one, being nearly level.

Engineers are also engaged in surveying a route for a railroad from the line of the Boston, Concord and Montreal railroad, near Union bridge, through Upper Gilmanton, over the "hollow route," London, Pembroke, etc., to Manchester.

Thus we perceive that the people of New England are alive to the importance of the early extension of the railroad system.

**Gravelled Roads.**

The Coburg, Canada, Star, says that "about two years ago the Hon. Z. Burnham persuaded the authorities to grant permission to the path-masters of this township to commute the statute labor, i. e., to take money instead of work, and lay it out on the roads as they deemed most advisable. In consequence, several patches of road were gravelled three inches deep and sixteen feet wide, for 5s. a rod! and those who had occasion to travel over them three months after they were made, will bear us out in stating that finer pieces of road could not be made. Last Fall and Spring they were excellent, while other parts of the road were almost impassable.—Young Mr. Hare, and Mr. John Clark, of Haldimand, had, some time previous to the permission to commute statute labor, by their praiseworthy exertions, managed to get that portion of road between Kelly's and Hammond's hill, gravelled about four inches in depth. Since that period it has been as smooth as a bowling green.

"As to the assertion that 'gravel roads are not fit to use under a twelvemonth from the time of formation,' we would direct the attention of the public to the piece between Burnet's corner and Perry's mills, made only a month ago, now almost perfectly smooth. As to the expense, it cost about 9s. a rod to gravel nine inches deep.

"To render gravel roads fit for immediate use, it is only necessary to throw about an inch of earth (sand loam is best) on the top of the gravel.

"It is only fair to state, that before we were convinced by experience of the superiority of gravel over plank, we were very much prejudiced in favor of the latter."

If we are not mistaken, it requires constant attention to the surface of gravelled roads to keep them smooth, and to prevent the formation of ruts or channels by the wheels; whereas, plank roads, properly made, require very little repair for a long time, and heavier loads may be taken over them.

**The Mining and Railroad Interests.**

It has been feared by many that the railroad interest is progressing more rapidly than the means of the country—indeed of the world—will warrant.—The question has been often asked, "where is the capital to be obtained to complete these works?" It may we think safely be answered—though we have not yet seen the response—that the increased produce of the mines at the present day, over those of twenty-five years ago, is more than sufficient to cover the cost of all the railroads now in use, or in course of construction. If this be so—and we have not a doubt of it—we may look for a vast and continued extension of both these interests, as the facilities afforded by railroads will ensure a constantly increased extension of the mining, as well as of the agricultural and commercial interests of the country, and these in turn re-act upon, and cause an extension of the railroad interest.

We are led to these remarks by an article in the London Mining Journal of 16th October, entitled, "The Silver and Gold Mines of the New World—or the future prospects of the mines of America compared with those of Europe."

We have frequently noticed these articles in that able Journal, and have concluded to re-publish some of them, by way of keeping pace with the progress of the age, in this important department of the industry and wealth of the world.

The writer says:

"If, instead of taking the total production, we take the annual extraction, the Russian Empire will appear in a much more advantageous position. At present, to speak only of gold: suppose the American production to be represented by 100, that of Russia is 144. As the washings of Asiatic Russia are extending incessantly, and as the field in which they take place seems infinite, we are still far distant from the amount which will be obtained. We must expect that shortly, through Russia, the general production of gold will approach the treble of what appeared at the end of the last century on the market of the world. This increase of the extraction must, after a certain delay, bring about a decline in price, because, unless there be a rapid development of wealth among the populations of countries, the means of employing this mass of gold would soon cease to be found, and the offer would thus exceed the demand. In other terms, in supposing that silver should remain at the same point with respect to corn, gold would not be worth more than 15, or 14 or 12 times its weight in silver. The relative value of the two precious metals (I do not speak of the absolute value, nor of the value in relation to that of objects of the first necessity,) would approach what it was among ancient nations, or before the discovery of America. In another point of view, the decline in the venal value of gold could not sustain itself, except in so far as the cost of production should have diminished, for otherwise the production would stop; but when we think on the surprising progress which the mechanical arts make every day, we cannot doubt that the selling price of gold will undergo a reduction, provided the deposits remain the same. Thus the decline, if it should take place, would not be likely to lessen the extraction. Moreover, some time must needs elapse before a production of gold, even triple



that of the commencement of the century, will cause an important reduction in the current price of that metal.

The quantity of gold which exists among civilised nations is so great, that an annual addition of 40,000 kilogrammes, beyond what was ordinarily disposed of previous to 1823, would not rapidly augment the mass in a very sensible manner, and would not affect the value until after a certain delay. This is proved by the fact, that when, 25 years ago, England obtained a sum of more than 1,000,000,000*f*, representing 300,000 kil. of pure gold, in order to coin gold money to replace bank notes, which alone had been in circulation since 1797, the price of gold was not sensibly affected in commerce. And then civilisation is in the vein for peace, which it may be believed that the senseless verbiage of retrograde passions will not induce it to abandon. By peace, easy circumstances and cultivation gain ground among the people—a little elegance and luxury introduces itself among all ranks of society. That is sufficient to secure an easy investment for a production of gold more considerable than that of the present day, without its being necessary for the extractors to occupy themselves with the decline in the value of gold. Before every person in Europe, male and female, shall have a gold watch, gold ring or a gold cross, Siberia has sufficient margin left it—And why, with the aid of peace, should we not come to that?

Nor must we expect that gold will sustain a decline in value comparable to that which may be foreseen, with respect to silver, for a period still uncertain, unless some new El Dorado shall be discovered, in which the conditions of working shall be completely changed. The extraction of this metal does not afford ground for the same extensive improvements as the extraction of silver, which is barbarous in America, the principal centres of production. In this point of view, England, whose metallic specie is in gold, is not exposed to the same loss as France, whose real money is only in silver.

**Production of Silver in Spain.**—On the old continent, Russia is not the only state which has increased its production of precious metals. The progress has been almost general among such of the European states as possess them. The success which Russia has obtained has been striking, incomparable. Nevertheless, it will be seen that some other nations have also made progress worthy of being cited. At the commencement of the century, Europe, without counting Russia, (which we here take in its whole extent, both to the east and west of the Oural mountains) yielded, in pure metal, 1300 kilogrammes of gold, and 52,670 kilogrammes of silver. In 1835 the quantity of gold was about the same, but the production of silver was increased by about 15,000 kilogrammes. The production of gold and silver in Europe was, in 1835, as at the commencement of the century, concentrated in Germany, and in the lower part or the valley of the Danube—that is, to speak more precisely, in the Hartz mountains, in Hanover, in those of Erzgebirge, which are

divided among Saxony, Bohemia, and Prussia, in Hungary and Transylvania—the last two countries, let us repeat, having pretty nearly the monopoly of gold. Out of Germany, and the valley of the Danube, there was not produced, in 1835, more than 10,000 kilogrammes of silver, of a value of about 2,000,000*f*, and from 20,000 to 25,000 kilogrammes of gold. Industry, which, since 1835, has taken a great extension in Europe, has paid more attention to the precious metals than it had previously done. At present, only little is wanting to make the production of silver double what it was in 1835. The principal cause of this development is, that Spain, which possesses important silver mines, formerly very celebrated, has again begun to work them.

The mines of gold, and particularly of silver, in Spain, have enjoyed great celebrity. Sirbo, whose exactitude is better appreciated every day, states the fecundity of them.—Long before him, the prophet Ezekiel had signalized it in his threatening prophecies against Tyre. The deposits of silver in the peninsula were worked with success under the Moors, as under the Romans. Since the country has had more liberty, the working has been resumed, and, at the same time, the numerous beds of coal, with inexhaustible mines of iron, which nature has placed in the Asturias, close to the sea, have begun to be worked with vigor.

The mines of lead, containing silver, situated in the kingdoms of Murcia and Granada, at a short distance from the Mediterranean, are those which formerly yielded, and still yield, a great quantity of silver. The lead, however, is not always associated with silver. The mines of Sierra de Gador, situated behind Almeria, which have yielded as much as 39,000,000 kilogrammes of lead, and still yield from 13,000,000 to 14,000,000 kilogrammes do not contain silver; but the mines which are behind Carthagenia, particularly at Almazarron, and still more particularly those that are worked in a little vale, called the Baranco Jaroso, in the Sierra Almagrera in the kingdom of Granada, have a yield of silver very remarkable, being 1 per 100 with respect to the lead. Having been successively visited by several very intelligent French engineers, the mines of the south of Spain were, in 1845, worked anew by M. Pernolet director of the mines of Pouliaouen, in Brittany. According to this gentleman, the single mines of the Sierra Almagrera yield at present, at least 40,000 kilogrammes of silver, and consequently the total extraction of the whole peninsula cannot be estimated at fewer than 50,000 kilogrammes.

As to gold, the yield of the peninsula is quite insignificant. It may, however, be considered probable that the extraordinary success of the washings of gold in Asiatic Russia will cause searches to be made for that metal in all the countries in which that was formerly done. Success exercises a fascinating power on the heart of man. The example of success sometimes gives rise to the most extravagant enterprises; and, for a stronger reason, it warrants attempts which

possess tolerable chances of success. There would be nothing unreasonable henceforth in attacking, with the means which science indicates, and which Russia every day improves, the alluvions which were formerly renowned for the gold which they contained. They exist some, not only in the Iberian peninsula but also in France, at the foot of the Pyrenees, which formerly made a good yield, especially in the valley of the Ariège, in which the characteristic circumstances of the deposit of gold in Siberia appear to exist. Ireland is also quoted."

Assuming the opinion of the writer to be correct, in relation to the increase of gold and silver, there will not be a lack of means to increase and extend the railroad interest.

#### Baltimore and Ohio Railroad.

##### Superintendent's Report.

We recently published the annual report of the President of this company—and now we commence that of the Engineer and General Superintendent, B. H. Latrobe, Esq.

At the close of the last fiscal year of this company, some changes were introduced in its management, and this is the first report of the General Superintendent. It goes much into detail, and will be found both interesting and useful; therefore we shall give the whole of it, except, perhaps, some of the tables.

OFFICE OF CHIEF ENG. AND GEN. Supt. }

Baltimore and Ohio Railroad. }

Baltimore, October 1, 1847. }

Hon. LOUIS McLANE, President, etc.

SIR:—The following statements descriptive of the operations of this company in the several branches of the service, during the official year ending yesterday, are respectfully submitted as the first annual report of the undersigned, acting as General Superintendent under the new organization established since the last annual meeting of the stockholders. The subjects to be presented will be arranged under these heads:

I. The working of the line east of Cumberland—which will be subdivided into,  
1st. The maintenance of the road and its appurtenances.

2d. The maintenance of the machinery.

3d. The conduct of the transportation.

4th. The revenue expenditures and trade.

II. The reconstruction and improvement of the old road—under the heads of,

1st. The laying of the new track.

2d. The alterations in the location of the road bed.

III. The extension of the road.

1st. West of Cumberland.

2d. East of Mount Clare.

In treating of the first of these divisions, reference will be had to the operations of former years upon this road, and also to those of other lines elsewhere, in order that such comparisons may be made as will enable the proprietors of the enterprise to judge of the manner in which its affairs have been administered.

Before proceeding with the details which follow, it will be proper briefly to advert to the change in the organization of the service above referred to, and which embraced every branch thereof, with the view of making it

commensurate with the increased extent and complication of the business of the road.

The new system went into operation upon the first of May last in all its provisions but that which relates to the mode of keeping the accounts of the tonnage department, which it has been necessary to postpone, until the necessary facilities at the several stations for accurately weighing every article offered for transportation, should be provided, which will now shortly be done.

When this improved organization, with its better distribution of duties and subordination of authority and its more perfect checks in the collection and disbursements of the revenue, shall have been sufficiently long in operation to familiarise all the officers and agents with its details, and when all the requisite additional conveniences for the transaction of the business of the road shall have been completed, it is not doubted that a considerable advance in the general economy of the work will be realised.

The out door working of the road is now in charge of a general superintendent, with three subordinate departments, of road, machinery and transportation, while the in-door financial and accounting branch of the service is administered by a secretary and treasurer, the whole operations and earnings of the road being recorded and preserved in the most concentrated and convenient form, at the company's principal office in Baltimore, —the whole transactions, both out and in-door, being under the eye and control of the president and board.

I proceed now to present an account of the operations which are under the direction of the general superintendent, and of their results, as shewn in the receipts, expenditures and net income of the line, together with such statements as are proper, respecting the manner of disposing of such part of the latter as has been re-invested in the work, and thus converted from income into capital.

#### 1. OF THE WORKING OF THE ROAD.

Taking its divisions in the order already given; and speaking separately of the main stem and Washington branch, and of the former first:

##### *The Main Stem.*

1st. *The Maintenance of the Road.*—Embracing the repairs and renewals.

1st. The road-bed and railway tracks. 2d. The bridges. 3d. The depot buildings. 4th. The water stations.

The expense of watching wooden bridges and pumping water at the stations not supplied by the natural flow of the stream, are separately exhibited in the account of expenditures, and will be noticed under their appropriate heads.

##### 1. *The Road Bed and Railway Tracks.*—

The bed of the road, which for some time after the completion of the graduation is always a source of expense in the removal of washes and slides, and the raising of embankments, is now, after the lapse of 17 years, for the section east of Harper's Ferry, and about six years for the section west of that point, in a well consolidated state. The culverts and drains have had their capacity well

tested by floods, and most of them have been found to pass the water well. Nevertheless, several, even upon the older part of the road, have proved too small, and, in consequence of damage received from the frequent high water of the past year, three large culverts between the Point of Rocks and Harper's Ferry, constructed (and in a very imperfect manner) in 1834, have required to be rebuilt. It is believed that there are but few culverts now left upon the line which will need a similar re-construction, and that this item will hereafter be a light one in the expense account. In reference to the bed of the road, generally, it is gratifying to know that it is ready, without further expense, to receive a second track, whenever the traffic shall be so increased as to require it; which cannot be said of all the railroads in the country, some of which, and among them one of such importance as the Western railroad of Massachusetts, were graded, originally, for but a single track for most of their length, and have still before them the outlay required to widen them throughout for a second.

*The Railway Tracks.*—Upon the main stem, there were, at the commencement of the present year, (Oct. 1st, 1846,) as follows: Plate rail track, east of Harper's Ferry, laid in 1830–34, 87 miles.

H rail track, east of Harper's Ferry, laid in 1838, 19 miles.

Ω rail track, west of Harper's Ferry, laid in 1841–42, 97 miles.

Ω rail track, east of Harper's Ferry, laid in 1846, 5 miles.

Total number of miles, in main and second tracks, inclusive of lateral and double track, east of the Monocacy, and exclusive of sidings, 208 miles.

There have been laid, east of Harper's Ferry, since the 1st of October, 1846, 25 miles of Ω rail track, in completion of the 30 miles of that track authorized last year; and about 11 miles of the same description of track have been brought into use since the 1st of June last, in the prosecution of the re-construction of the 31 miles authorised this year, so that the account stands thus, at this date, October 1st, 1847:

Plate rail track, east of Harper's Ferry, laid in 1830–31, 51 miles.

H rail track, east of Harper's Ferry, laid in 1838, 19 miles.

Ω rail track, west of Harper's Ferry, laid in 1841–42, 97 miles.

Ω rail track, east of Harper's Ferry, laid in 1846–47, 41 miles.

Total number of miles as before, 208.

So that, during the year just expired, the number of miles of plate rail track has been reduced 30, and that of Ω rail track increased a corresponding number. When the whole of the 31 miles of the latter track, now being laid, shall be put down, which is expected early in the coming year, there will be but 31 miles of the old flat-bar road remaining, inclusive of the two miles of main track in the city of Baltimore, and the three miles of the lateral track to Frederick.

The cost of the current repairs of the track thus composed of these different kinds of

structure, has been, for the twelve months, ending September 30th, as follows: The number of miles of each kind is the average kept up through the year; the Ω rail east of Harper's Ferry increases in extent just as the plate rail decreases. In the column of "cost per mile," the upper figures set opposite each description of track show the cost, inclusive of that of keeping the bed of the road in order, which would be the same for any track; and the lower figures show the cost of maintaining the track alone, exclusive of that of the road bed.

*Apportionment of the Cost of Repairs of Railway among the different descriptions of Track upon the Baltimore and Ohio Railroad, during the year ending September 30th, 1847.*

Description of TRACK.	No. of Miles.	Cost of Labor.	Cost of Lumber.	Cost of Iron Bars.	Cost of Castings.	Cost of Bolts and Spikes.	Miscellaneous.	Deduction for old materials sold and 47½% on hand.	Average cost per mile.	Total Cost.
Plate Rail, . . . . .	65	\$27,391 68	\$18,865 98	\$13,929 55	\$960 14	\$4,375 76	\$1,614 17	\$3,371 65	968 876	\$62,956 63
H Rail, . . . . .	19	5,606 04	1,704 84		480 00	534 00	599 67	1,214 00	406 292	7,710 55
Ω Rail east of H. Ferry, . . . . .	97	8,531 16	174 06		200 00	156 16	495 00	1,725 00	290 198	7,831 38
Ω Rail west of H. Ferry, . . . . .	97	22,375 18	29,095 04		1,446 65	1,411 30	2,906 79	6,980 00	498 446	49,252 96
Totals,	208	\$79,904 06	\$41,820 92	\$13,929 55	\$3,084 79	\$6,378 22	\$5,615 63	\$13,290 65	614 533	\$127,751 52

This division of the expenses among the different sorts of track is not precise; but it is sufficiently exact to show pretty correctly the relative expense of maintaining them during the year—From this comparison it may be inferred, that if the the whole 87 miles of plate rail track with which the year was commenced had been continued throughout it, instead of having an average of 27 miles of it supplanted by the new Ω rail track, the expense of repairs would have been \$18,306 greater than they were, and that if the new track had wholly superseded the old, the saving would have been \$44,070. The cost



of the repairs of the track during the preceding year, ending September 30th, 1846, were \$115,566 46, after deducting \$579,03 for increase of the value of the stock of materials accumulated during the year. The expense of repairs is therefore greater this year than the last, by \$12,185 06, notwithstanding the assistance derived from the new track east of Harper's Ferry.

This is to be accounted for in two ways: 1st. The more extensive renewal of perishable material. 2d. The increased wear and tear from increased trade.

Under the first of these heads it is to be observed that in all tracks, into the construction of which wood enters, decay has its regular periods, the intermissions of which correspond to the time for which the material will endure exposure to the weather and other agents of destruction. This period with the sort of timber generally used in railways, is from six to eight years. Where it is put perfectly green into the track, as was the case with the road west of Harper's Ferry, it is shorter. The past year, for that part of the road, has been the sixth, and the present will be the seventh year of duration, and these will have been the years of greatest expense in its renewal, and by the end of the eighth year, terminating October 1st, 1849, the whole wooden part of that section, 97 miles in length, will have been renewed. The periods of decay and renovation will not however come round so regularly hereafter; as much of the timber put into the track in 1841 and '42 was of inferior quality, from the impracticability of procuring better, in the haste of first construction. This timber began to decay after it had been but three years in the track, and thus the process of renewal was commenced before the arrival of the regular period appropriate to the sort of lumber used upon other sections of the road and to be used hereafter. This will lead to a more uniform distribution of renewals for the future, and by procuring and storing as it is proposed, the required lumber during the year preceding its use, the length of its duration will be materially extended. The 19 miles of H rail track, laid in 1838, are now, also, requiring large renewals of the cross ties and sills upon which it is laid, and which have been of a description of wood more durable than that used west of Harper's Ferry, has lasted longer.

The durability of the longitudinal pieces of timber has thus far appeared to be about equal to that of the cross ties.

Under the second head of wear and tear, the reason of the increased cost of repairs is still more remarkably manifest, the trade of the road during the past year being more than fifty per cent. greater than that of the one preceding it. These two causes would suffice to account for a much larger increase than has actually taken place, as will be apparent upon comparing the cost of maintenance road per ton and per passenger per mile, in the tabular statement appended to this report, for which 1846 was 248 1000 cents and 603 1000 of a cent, and in 1847, 181 1000 cents, and 422 1000 cents respectively—a re-

duction of twenty-seven per cent. upon the former, and thirty per cent. upon the latter, in favor of the year just expired.

#### THE BRIDGES.

This head of expenditure has shown a large and important one for the last three years—principally on account of the necessity of rebuilding most of the many wooden viaducts upon the line. Of these numerous and extensive structures, the aggregate length is 4115 feet, in spans varying from 40 to 150 feet, besides 1633 feet of trestle bridging at Harper's Ferry, making the whole length of timber bridging 5748 feet, or 1.09 miles.—They carry the road across eleven large rivers and three smaller streams intersected by the route.

They were built originally with a view to much lighter locomotives and trains than those since traversing the road. They were also built of materials, the best to be had at the time, but not offering the choice in quality which is now open, and put into the work with but little seasoning. Decay consequently soon commenced while the increasing weight and frequency of the trains imposed a duty which required increasing instead of diminishing ability to perform. The result has been that, although some of these viaducts have suffered much more than others, yet that an entire reconstruction of the whole has been considered expedient rather than a resort to a less thorough renovation, which would have been less safe, and in the end more expensive. In this, no pains and expense have been spared to render them capable of performing the severest duty that can ever be required of them, and entire success has been the result. All the new work has stood the tests of its strength completely—and the most difficult and extensive structure of the whole, the wide arch at Harper's Ferry has now borne the trade of the road under the most trying circumstances for two years without exhibiting the smallest weakness in any of its parts. A very important part of the improvements applied to the new structures consists in covering them from the weather and providing for the seasoning of the timber more perfectly than before, and their protection, it is believed is now so effectual as to secure them against all the usual causes of decay, and to render them as durable as if built of stone or iron. The agent of destruction remaining to be guarded against is fire, and this danger can only be averted by a vigilant watch, the employment of which will always be indispensable, but the expense of which will not increase with the trade of the road and will thus be a diminishing tax upon it.

In dividing the whole cost of the bridge account, under the heads of "improvements" and "current repairs," I have been guided by the experience of the first two years of their duration, after the opening of the road from Harper's Ferry to Cumberland in 1842, during which period they cost, in 1843, \$6,455, and in 1844 \$6,248, making an average of \$6,351 to maintain them in repair. This is about one-ninth or eleven per cent. of what they have cost per annum to rebuild them in

the three subsequent years, and I am satisfied that with their new and vastly superior structure, they may be kept in perpetual repair, under any future increase of trade, for what it cost—say \$6,351 per annum to maintain them under the light traffic of the two first years of their existence—in 1843 and 1844.

The whole cost of maintaining and rebuilding bridges in the year ending September 30th, 1847—was \$65,363 74. From this we deduct \$5,105 79 for the cost of rebuilding culverts, destroyed by floods, and for other masonry, and there will be left \$60,257 95 for wood and all other work. From this there must be taken \$7,819 29, on account of the increase of materials on hand, compared with the stock reported September 30th, 1846—and there is left \$52,438 66, as the entire outlay for work done upon wooden viaducts this year. Estimating, as above, the sum of \$6,431 for ordinary annual repairs, and deducting it from the whole expense of the work, there remains \$46,087 66, as the cost of permanent improvements properly chargeable to capital and considered as an investment in the work.

Before leaving this subject it is right to state that the experience of all other roads of heavy trade in the United States is in regard to their wooden bridges, the same. They were built too slightly in the first place, and have required to be reconstructed or strengthened in such a way as to amount to reconstruction—and I may add that all the experience of those companies, as well as that of this, has gone to demonstrate the soundness of the principles upon which the bridges of the Baltimore and Ohio railroad are built.

3d. *Depot Buildings.*—This department of the company's works exhibit much variety in style and material, some of the buildings being very substantial, commodious, and well looking, while others are equally remarkable for the cheap and perishable way in which they were put up. The two principal engine houses and most of the work shops at the Mount Clare depot, together with the car-house there—the depot houses at Ellicott's Mills, Frederick, Harper's Ferry and Baltimore are of the former character,—while the engine houses at Harper's Ferry and Cumberland, and the tonnage and passenger houses at the latter point are the frame structures hastily erected at and soon after the opening of the road in 1842, when the means of the company were for the time exhausted. The maintenance of these slight buildings is, of course, costly in proportion to their deficiency in the qualities of durable work, and the cost of repairs must be expected to be heavy so long as there is so much that is frail in their composition. The total expenditure under this head during the year just closed is \$16,522 72, and after adding \$226 54, for the diminished value of materials in store for future work, amounts to \$16,598 26—being \$6,006 55 greater than during the year 1846. This sum was expended chiefly in the early part of the year, in the considerable alterations and additions made to the buildings on Pratt street, including a complete new set of

scales of enlarged size and improved pattern for weighing merchandise, to replace the old and inferior scales, which had been in service many years. I would also observe that upon examining this account I perceive that much of the work which has been charged to it, would more appropriately have fallen under the head of "improvements" than "repairs," as it was in fact entirely new and additional in its character, and has added permanently to the company's property.

**Watching Bridges.**—The cost of this attendant upon the timber viaducts was \$7,049 65 for the past year—exceeding that of the year previous by \$370 15—due to the employment of an additional watchman for the night, upon the Harper's Ferry viaduct, made necessary by the running of the night trains through this bridge (which is the only bridge with gates upon the line, and upon which tolls are collected.) It will not be practicable to diminish this expense while the bridges are of a combustible material; but on the other hand it is an expense not subject to increase with the trade.

**4th. Water Stations.**—There are thirty-one water stations upon the main stem of the road, including that at Baltimore, and they are well built and durable. Eighteen of them are supplied by pipes conducting the water from springs, and at thirteen the water is pumped by hand or horse power. The cost of maintaining the former is very moderate—that of keeping up the latter is more considerable—the two together amount to \$2,890 08 for the year, being \$770 32 more than those of the previous year—chiefly due to permanent improvements in the pumps and other fixtures of the stations.

**Pumping Water.**—The expense of this operation for the last year has been \$3,061 68 being but \$165 37 greater than the year before, notwithstanding the greatly increased consumption of water. This is an expended but little dependent on the quantity of water used at each station, as the hire of the labor must be paid, whether in full or partial occupation.

#### THE WASHINGTON BRANCH.

**Maintenance of Road.**—In speaking of this head of expenditure upon the branch of Washington, it is not necessary to go into the details just stated in regard to the main stem.

**1st. The Road Bed** of the branch is in good condition, annually improving as the deep cuts become less subject to slides and washes.

**2d. The Railway Track** is also in good order, and the part of it originally laid upon logs, and inferior to the rest in its structure, is now nearly removed. The repairs under these two heads, (after deducting \$22 48 for increase in stock of materials on hand,) have cost \$18,077 88, being \$31 93 more than those of 1846.

**3d. The Bridges** are all of stone, and have been a source of no expense during the year. A square culvert, near the Laurel Factory, which was swept away by a severe flood, has been replaced by a stone arch, with greatly increased water way. The past year's expenditure, under this head, has been

\$1,908 48, and is \$145 27 greater than that of the preceding year.\*

**4th. Depots.**—The only buildings belonging to the Washington branch are those in the city of Washington. The tonnage house is a substantial building and sufficient for the present business. The engine house, though sufficiently well built, is however too small, and the passenger house very deficient in suitable accommodation for so important a station. It has, however, been much improved by some recent alterations in its arrangement, executed while the building was undergoing some necessary repairs. The repairs of depots this year have been \$951 46; being \$23 56 less than those of 1846.

**5th. Water Stations.**—There are six water houses on this road, of which, four are supplied from springs, and two by pumps. Of the former, two have been long since rendered useless by the failure of the sources of supply; but they are not needed in the working of the road. The pump houses are also used only occasionally, and in case of failure of the others. Repairs in 1847, \$413 39, being \$257 54 greater than in 1846.

#### SUMMARY.

The whole cost of maintaining the road bed and railway, bridges, depots, and water stations, including pumping water and watching bridges during the year, ending September 30th, 1847, upon the main stem, has been.....

\$226,374 22

As charged upon the books, but from which must be deducted the increase in the value of the stock of materials on hand, accruing during the year, and amounting to.....

11,327 58

Leaving the true cost of maintaining the road and buildings.....

\$215,046 64

Which is \$18,305 14 more than that of the previous year; and upon the Washington branch the maintenance of the same department has been at a cost of.....

\$21,383 69

Reduced by the sum expressing the increased value of materials.....

22 48

And showing the actual expense of maintenance to have been.....

\$21,361 21

Which is \$411 18 greater than that of the preceding year. The increase, in both cases, will be seen to be not out of proportion to the increased service rendered to the public and the profits of the trade.

**2d. Maintenance of the Machinery.**—This department divides itself into four heads; 1st, locomotives, engines and tenders; 2d passenger cars; 3d, burden cars; 4th, stationary, machinery and shops.

**1. Locomotives and Tenders.**—The whole number of engines belonging to the company

\* NOTE.—Since writing the above, a freshet has occurred, (on the 7th of October) which has destroyed two of the bridges, the Little Patuxent and North West Branch viaduct; and also carried away the new arched culvert near the Laurel Factory, and several other culverts. This casualty will be suitably noticed in the next annual report, as belonging to the current year. The inundation was the highest upon record since the settlement of the country, in the streams crossed by these structures, and the damage to other public works has been extensive. The main stem of this road, however, suffered but little, the injury being chiefly confined to the Patterson bridge, 13 miles from Baltimore, one of the piers of which was injured, but without interrupting the use of the bridge.

is, at this date, 49; divided into four classes, according to their weight and power—there are of the

Class	tons	wheels	rated at	class
1st, weighing 23, on 8, all drivers, 13,	23	8	13	39 of the 4th
2d, weighing 16½ on 8 and 6, do. 2,	16½	8 and 6	2	4 of the 4th
3d, weighing 15, on 8, all drivers, 12,	15	8	12	18 of the 4th
4th, do. 10, on 6 & 8, 2 & 4 do. 22,	10	6 & 8	2 & 4	22 of the 4th

Total,.....49 83

Of the first class, 12 were built by Ross Winans, and one in the company's shop at Mount Clare—of the second, one was built by M. W. Baldwin, and the other rebuilt in the company's shop, from a lighter engine constructed by Eastwick & Harrison—of the third class, four were built by Eastwick & Harrison, three by the New Castle Manufacturing Company, (one of them since rebuilt in the company's shop,) four by Ross Winans, (two of them with upright boilers and horizontal cylinders,) and one by Wm. Norris—of the fourth class, 13 are of the old upright boiler and cylinder patterns, built by Davis & Winans, prior to 1837, and nine are of the manufacture of William Norris. These engines, various as they are in weight and form, are all useful machines in their several degrees. Those of the first class burn Cumberland coal, for which their furnaces are specially adapted; and so do the upright boiler engines of the third and fourth class. The rest burn wood, or a mixture of wood and coal. The passenger trains on both roads were originally drawn by the horizontal six-wheel engines of the fourth class, for which they became too heavy two or three years since, and now eight-wheeled engines of the third class are chiefly used for them; and upon the main stem even these are so often inadequate to the duty that the alternative, will soon be presented, of running more frequent trains, or of using heavier engines, or assistant power, upon the higher grades. Of the third class engines, eight are of a make suitable for passenger trains; six of these ply upon the main stem, three with passengers, constantly, and three ordinarily with freight; the remaining two are regularly employed in the two principal passenger trains upon the Washington branch.

Of the freight engines of the several classes, the whole number are at work upon the main stem, excepting three of the fourth class used on the Washington branch; one of these last is attached to the morning mail train, to Washington, and returns with a load of freight and passengers.

There are thus at work upon the main stem, forty-four engines of all classes, and upon the Washington branch, five, making up the number of forty-nine, as above stated, and equivalent, in their power and performance, to 53 of the fourth or lightest class, first used upon the road. I have considered it useful to make the preceding statement of the company's motive power establishment, not only that its present extent may be fully exhibited, but that its progress, from the lighter to the heavier locomotives, for its passenger as well as freight business, may be observed, with a corresponding advance in the economy of transportation consequent thereupon, as will be shown.



## PERFORMANCE IN MILES RUN.

The duty performed by these engines has been as follows in miles run on the *main stem*:

13 first class engines, with freight trains,	307,586
2 second class engines, with freight trains,	24,702
10 third class engines, with freight trains,	115,885
third class engines, with passenger trains,	129,838
19 fourth class engines, with freight trains,	312,934
The same engines, with passenger trains,	17,031

44 engines of all classes, with passengers and freight, have run.....808,026  
On the *Washington branch*:

2 third class engines, with passenger trains,	44,784
3 fourth class engines, with passenger trains,	15,925
The same engines, with freight trains,	40,652

5 engines of both classes, with passengers and freight, have run.....101,361

49 engines of both classes, with passengers and freight, have run.....909,387

The whole stock of 49 engines have, therefore, run, during the year ending the 30th September, ultimo, nine hundred and nine thousand, three hundred and eighty-seven miles, being an average of 18,550 miles to each engine.

The average of the thirteen first class engines, with freight alone, has been 15,968 miles—of the two second class, with freight alone, 12,351 miles—of the twelve third class, with freight and passengers together, 24,209 miles—of the twenty-two fourth class with freight and passengers together, 17,572 miles. From these numbers, however, deductions respecting the relative *efficiency* of the respective *classes* cannot be legitimately drawn, as some of each of the three first classes were placed upon the road since the beginning of the year, and consequently were not at work during the whole period. Had all of these engines been at work the full twelve months, the number of miles run by each class would have stood; for the first class, 18,220—second class, 13,654—third class, 25,485, and of the fourth class as before, 17,572 miles. The operations of the three third class engines, exclusively employed upon the passenger trains for the main stem, show satisfactorily their capacity in the performance of this description of duty; and it has amounted to the running of 109,154 miles for the three; or an average of 36,385 for each—the lowest being 33,122, and the highest 39,435. The average is at the rate of 100 miles a day for every day in the year, which is a most satisfactory performance—and the more highly to be appreciated, when the crooked line and imperfect structure of much of this road is considered. The number of miles run by the passenger engines, it will be observed, is much greater than that of the tonnage. This is no indication of inferior duty performed by the latter, but is the obvious result of the greater speed and lighter load of the passenger engines, and very much also of the greater regularity of the passenger business. It must be remarked that the duty of the second class engines appears so much less than that of the other classes, not from inferior efficiency, but from other circumstances which have given the two engines of this class less to do than they could have accomplished. This is particularly to be

said of the engine of this class which has done the work of the Mount Savage road; this engine being, in fact, one of the best in the service.

## PERFORMANCE IN TONS HAULED ONE MILE.

By this, the only perfect mode of expressing the duty of the engines, it would appear that the 44 engines employed in hauling freight have drawn one mile within the year an average of 652,207 tons upon the Main stem and Washington branch together, excluding the five engines of the third class which have been altogether engaged (three on the Main stem, and two on the Washington branch) in the passenger business, and converting the passengers hauled by those engines of the third and fourth class usually employed in the freight business into tons, at 12 passengers to the ton. The 44 freight engines of all classes being expressed by their equivalent in engines of the fourth or lightest class, would be represented by 75½ engines of that class—of which 72½ would belong to the Main stem and three to the Washington branch—and each of these engines would have drawn one mile on both roads an average of 380,094 tons in the period of twelve months. This tonnage includes materials and fuel distributed along the line for the company's use. If that be excluded, and the freight for which compensation has been received be alone considered, the performance of each engine expressed in its equivalent of the lightest class will have been 337,671 upon the Main stem and Washington branch, which if all the engines upon the road had been upon it the whole 12 months, would have been increased 4½ per cent., or to 352,863 tons one mile.\*

## COST OF REPAIRS OF LOCOMOTIVES.

*Main Stem*.—The whole amount charged to the account for the past year is, \$74,139 51—from which must be deducted \$3,119 28—for increase in stock of materials and duplicate parts of machinery—and the net amt, showing the actual outlay for the maintenance of the engines, is \$71,020 23. This is greater than the corresponding amount for the preceding year by \$14,969 06—and the increase is sufficiently accounted for by the addition to the number of the engines and the work done by them. The average number at work during the year 1846 was equivalent to 53½ of the fourth class, and during the year 1847 was equivalent to 74. Consequently the number of engines is greater by 39 per cent. The duty in tons and passengers carried one mile is also greater by 65 per cent, while the increase in repairs is but 27 per cent. During the past year the "improvements" in the engines were about equal in value to those which took place during the previous year, and amounted to some \$10,500. By this expenditure, included in the above amount of \$71,020 23, nine of the fourth class engines were thoroughly rebuilt, five of them of the old upright boiler four-wheeled pattern of Winans & Davis, and four of the six wheeled horizontal pattern of Wm. Norris—besides

\* NOTE. There have been placed upon the road, since October 1, 1846, 5 engines of the 1st, 1 of the 2d, and 2 of the 3d class.

which two other engines, one of the first and another of the fourth class, had copper furnaces applied to them.

The cost of repairs per mile and per ton per mile has been nearly as follows for the several classes:

	Per mile run.	Per ton drawn.
1st class.....	11-97 cents...	1696 of a cent per mile
2d ".....	7-18 " .....	1512 " "
3d ".....	7-22 " .....	3506 " "
4th ".....	8-07 " .....	3573 " "
General average—		
for all classes..	8-78 cents...	2505 of a cent per mile.

In this exhibit, the second class engine appears to have the advantage of the first, which in its turn, has greatly the advantage of the third and fourth. The comparison is not however a fair one, as between the first and second. As the only two second class engines in the service have been but a year at work, while the 13 first class engines have been an average of not less than two years upon the road, and have labored under some imperfections, in their smaller parts which have now been remedied. But for these circumstances and also, in a measure, the state of the road upon which the engines have run, and to the fact that the first class engines have been worked much harder than the second, it is not doubted that the economy of the first class in repairs, would have been considerably greater than that of the second.

*Washington Branch*.—The cost of repairs of locomotives, for the year just ended on this road, is charged at \$10,117 46; to which must be added \$1,034 52, for reduction in the value of materials on hand, making the true cost \$11,151 98, being \$954 13 less than the preceding year.

The cost of repairs per mile and per ton per mile, has been nearly as follows:

	Per mile run.	Per ton carried.
3d class.....	83 cents.....	14500 cents per mile
4th ".....	13-14 " .....	6415 " "
General average—		
for both classes..	11 cents....	7867 cents per mile.

The third class engines on this road have run altogether with passengers, which are here expressed by their equivalent in tons, at 12 to the ton. The cost per ton per mile is therefore large, as the tonnage is necessarily so light compared with dead freight. The fourth class engines have run with both freight and passengers. Their cost of repairs is also high, both per mile and per ton per mile. This is due to the fact that two out of the three engines of this class have been *rebuilt* during the year, after nearly ten years service. The general average cost of repairs and renewals of all classes of engines upon both roads, has been 10-14 cents per mile, and 30-97 of a cent per ton per mile. In the preceding fiscal year, ending September 30, 1846, the general result upon the *Main stem* was 8-4 cents per mile run, and 3270 of a cent per mile per ton carried, against 8-78 cents and 2505 cents in the year just ended; the increase of cost per mile run being but 4½ per cent.; and the decrease upon the cost of the real duty performed being 23½ per cent. This comparison simply shows how much more rapidly the useful effect of the motive power increases than the cost of obtaining that increase.

To be Continued.

**Gauge, or Width of Track for Railroads.**  
*Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Morton, Esq., Chief Engineer.*

Continued from page 793.

The distance from Montreal by your main line to Portland, thence to Boston by steamboat or railroad, is but a trifle more than by your branch line, the Passumpsic, the Northern, the Concord, and other roads to the same point.

Between Portland and Boston there are steam vessels plying constantly, summer and winter. Passengers and all description of freight are carried on these steamboats at very low rates, in consequence of the competition with each other, and with the railroads.

A competition must always exist on this route between rival lines of boats and railroads, which will continue to keep the rates low for all time to come. It is well known that transportation can be done by steamboats and propellers at lower rates than by any other means of conveyance.

The facilities for the transshipment of freight at the Atlantic terminus, from your cars to vessels, will be of the cheapest and most superior character.

The location of the terminus is such as to afford more ample means and accommodations for an extended business, than perhaps any other railway terminus on the continent.

A connection with the roads extending from Portland to Boston is contemplated, by which a choice of conveyance is at all times afforded to merchandize and passengers going in that direction, while another connection with the eastern part of Maine and the lower provinces is in progress, opening a communication for trade and travel going eastward.

If the object is to reach Boston with merchandize from the interior or to forward it from Boston to the interior, there can be no doubt but that it can be carried cheaper on this line than by any other route to the St. Lawrence.

Although the distance from Boston by this route may be somewhat greater than by others, yet one-fourth of the whole distance between Montreal and Boston being by the cheapest mode of communication in existence and the remaining portion of the route being a continuous line of railway of great excellence and capacity, there is little reason to doubt the superior economy of this route.

If it is desirable to ship merchandize for Europe or any part of the United States, its delivery at Portland harbor gives in all respects equal or superior advantages.

With regard to importations made while the navigation of the St. Lawrence is closed, it may be observed that the more easterly position of Portland harbor and the greater safety and ease with which it is entered, will somewhat shorten the voyage, and the great saving in distance thence to Montreal will insure your main line the greater portion of this business, and affords additional reasons for a road of greater capabilities.

Your road is intended to form a large portion of the line to Quebec nearly equal to

half the distance between the latter place and Montreal, and while it thus composes a part of the main line between the two most populous cities of Canada, it furnishes to both a communication with the sea board, and the means of winter importations. When your main line is extended to Quebec and to the Atlantic, the citizens of both places may make their winter importations with the same regularity and safety as though they were located on the seaboard.

Merchandize going in either direction between Quebec and England during the suspension of the navigation of the St. Lawrence would probably take the shortest and cheapest route.

The people therefore of this part of the province have a direct interest in whatever tends to lessen cost of transportation on your road.

From the general views I have thus taken of the probable course of the trade of your road both to and from the seaboard, I am led to believe that the great mass of merchandize will reach Portland harbor and that with the exception of the Quebec trade it will pass over the whole length of your main line.

If this should prove to be the case, and there appears to be well founded reasons for looking forward to such a result, it is a subject of consideration in determining the gauge of your road, what importance is to be attached to the freight business of the Passumpsic branch compared with the great mass which will go in another direction.

It remains to be considered how far you will be warranted in reference to your peculiar position and the efforts now making to turn the trade from the St. Lawrence above Montreal, and also in regard to the great interest of the public, which is deeply concerned in whatever lessens the cost of transportation, and retains the trade in its legitimate channels; I repeat, it is for you to consider how far it would be wise, under the circumstances to lessen in any degree the capacity of your road.

In discussing the question of gauge as connected with the business of the Passumpsic branch, I have thus far confined my observations to the subject of merchandize transportation.

It now remains to be considered whether the adoption of a different gauge on your road from that of the Passumpsic branch will affect your passenger business unfavorably to afford less accommodation to the travelling public.

I beg leave again to refer to the system of railways in the United States, as perhaps affording the nearest approximation both in construction and management to what will be found from the similarity of the country and the nature of the business to be done, most suitable for Canada.

The line of railway between Boston and Buffalo is as before stated, 535 miles in length and is operated by ten separate corporations.

As every line yet projected from Montreal to Boston nearly resemble this in the proportionate number of corporations, and other circumstances, there appears to be much propri-

ety in referring to the management of passenger business on this line.

A number of these corporations own the passenger, baggage and mail cars jointly.

This arrangement extends from Rochester to Schenectady, a distance of 236 miles. On the remaining distance it is believed that the passenger cars belong to separate companies, each furnishing a proportionable number, if run over several roads.

The same cars run from Buffalo to Rochester, a distance of 73 miles, where a change takes place, the passengers are transferred to other cars; thence to Utica, a distance of 158 miles, the same cars are continued, where another change takes place.

At Schenectady, distant from Utica 78 miles east, there is another change where passengers are placed in the cars of the Schenectady and Troy road, thence to Troy the distance is 19 miles. It is contemplated to extend the cars from Utica to Troy, which will avoid the change at Schenectady.

After arriving at Troy, passengers for Boston take the cars of the Troy and Greenbush company, and again change at East Albany to the cars of the Western and Boston and Worcester roads which run to Boston, a distance of 200 miles.

Here, it will be observed, there are 535 miles of railroad on the same gauge forming one line and operating in connection, yet in this distance, there are five points at which passengers are changed to different cars.

It is as yet, I believe, only proposed to avoid one change. But so far as I have been able to learn there is little difficulty in effecting these changes, or objections raised to them by the travelling community.

On a long line with the proper arrangements for the transfer of baggage, there would be no objection on the part of passengers to a change of cars, for it would be a great relief after a long ride to change from dusty cars to those well cleaned and ventilated.

This transfer would probably take place at points where passengers would be furnished with refreshments or their ordinary meals, and I doubt not the opportunity would be gladly embraced by all as affording relief from the tedious monotony of a long railroad journey. The safety of passengers requires that cars should be run no greater distance than will permit frequent and careful inspection of all their parts, and this cannot well be done except at the end of the journey.

Between Boston and New York, there are changes from road to road, and from road to steamboat, and between New York and Philadelphia, and Philadelphia and Washington the same thing occurs.

These changes are generally looked forward to with pleasure, as it gives variety to the journey without adding to its inconveniences.

Changes are frequent and necessary for cross lines and branches. On the Western road, in Massachusetts, a transfer is made to several important branches, one of which forms a main line to New York.

At the commencement of the journey, the baggage is generally placed in enclosed crates



secure in every respect, each passenger receiving a check properly numbered, and a corresponding check is attached to each trunk or parcel, he is therefore under no apprehension about his baggage whatever the number of changes may be, and at the end of the journey he has only to present his check and his baggage is delivered.

In England it is customary to carry the baggage on the top of the passenger cars, and as every change of car involves a change of baggage, each piece is to be removed separately from the top of one car to that of another.

Frequent changes of this character would I doubt not be highly objectionable, and this I believe constitutes the main argument against a change of passenger cars in England.

But when the baggage is transferred from one road to another without unpacking it or opening the crates, the objections to a change of cars cease.

As an evidence of some of the difficulties of an extended interchange of cars in England, I would refer to the testimony of Mr. Edward Bury, of the London and Birmingham road, before the gauge commissioners. He states that they are put to great inconvenience in consequence of the public not desiring to change, and that the trains are loaded with carriages far beyond what is necessary for the number of passengers. That the average number of passengers in the first class cars is not eight, whereas they will accommodate eighteen.

Mr. Bury further states that in consequence of the great number of foreign carriages on their road, that they have one empty train each way daily, and that they have returned as many as 67 empty cars in one day. This is a very serious and unnecessary tax on the corporation, which in this country should be avoided.

In Canada and the United States, the main lines of railroad, when a great system shall have been perfected, will be more extended, embracing a vast extent of country, and it would be preposterous to attempt an interchange of cars, throughout the two countries or any considerable portion of them, and transfer of both freight and passengers will at various points be unavoidable.

There are now probably over 5000 miles of railways in operation in the United States, and in the management of so extensive a system much valuable experience has been acquired, yet the transfer of passengers on these railways is of common occurrence, and little is ever said about it, simply because the arrangements are ordinarily such as to relieve passengers from any anxiety about their baggage, and otherwise is to them a subject of indifference.

Judging therefore from the experience of these roads, it does not appear probable so far as the passenger business of the Passumpsic branch is concerned, that a difference of gauge at the boundary line would have any effect on the revenue of your road.

With the same gauge I do not think you would find it advisable to allow your passen-

ger cars to go out of the province in this direction.

The distance from Montreal to the boundary line by this branch is about 128 miles; and under the circumstances there appears much propriety in making this point the place of transfer, for it could not be expected, neither is it desirable, that your passenger cars should run over all these roads to Boston.

The statements given in another part of this report relative to the subject of merchandise transportation, will I trust aid somewhat in coming to a conclusion as to the probable amount of freight which will pass over this branch for shipment or for the Boston market. And I will further observe that it is desirable on account of convenience, regularity and despatch of business on your road, that your Boston trade should continue over the whole length of your main line, which, I believe, will be found to be for the interest of the public. The merchandise passing over your road for the Boston market will bear a small proportion to the amount destined for England and other markets; and your main line furnishing a better means of conveyance than the branch for through freight whatever its destination, renders the question of break of gauge on the Passumpsic branch of less importance.

I have already shown that a break of gauge constitutes no objection as it regards passenger business. And in view of your peculiar position with reference to competing lines and the probable course of trade, I am decidedly of the opinion that a break of gauge on the Passumpsic branch at the boundary line is preferable to an exchange of cars, and a sacrifice of the great advantages of a broad gauge on your main line.

There is another and more extended view of the question of gauge which is not only of great interest to your road, but of vital importance to the welfare and prosperity of all the provinces.

Canada and the lower provinces embrace an extent of territory of over 414,000 square miles, with a soil of unsurpassing fertility, possessing great agricultural and mineral resources, and inhabited by a hardy and enterprising population, numbering nearly two million souls. It is watered by the great rivers and lakes of North America, and these waters are teaming with the trade of the surrounding territories.

It requires no prophetic skill to foretell the greatness of a country thus situated, and the vast increase of wealth and prosperity which will attend a full development of its great resources by a judicious system of internal improvement.

Government, with a full appreciation of the importance of this country, and the great natural advantages of the St. Lawrence for cheap transportation, has embarked in a great system of canals, which are equal in importance and magnitude to any in the world.

It is not, however, a question whether the advantages of the St. Lawrence route are such as to retain the trade of the canals only, but it is rather whether these superior facilities shall not attract a large portion of the

trade of the American States bordering on the great lakes.

The rapidly increasing wealth and trade of the west are considerations of the greatest importance to both countries; and it is a question yet to be decided, which of the numerous rival routes to the Atlantic seaboard, will be able to attract the largest share of that trade.

The Atlantic cities, Boston, New York, Philadelphia and Baltimore, with the aid and encouragement of their respective States, are all striving with commendable zeal to secure this great prize.

Baltimore is pressing forward with her great railway, which is destined to scale the Allegheny ridge, and reach the Ohio river at Wheeling.

Philadelphia with all the advantages securing to her by the long line of state canals, which reach the Ohio river at Pittsburg, has now embarked in the construction of the Central railroad, which is to perfect the great line of railway communication over the same mountain range to the Ohio river.

In like manner New York with all the incalculable benefits conferred upon her by her magnificent canals and her great central chain of railways, is pressing vigorously forward with her Erie road to reach lake Erie at Dunkirk.

Boston not content with her Great Western road, and the control of the roads composing the great thoroughfare westward in other States, is now extending her arms in other directions, with a view more effectually to secure the western trade. She is advancing with the construction of another road to lake Champlain, thence to the St. Lawrence river at Ogdensburg.

She maintains that the opening of a channel of communication to the St. Lawrence at this point, will secure to her the balance of the trade of the lakes which does not reach her through the Erie and Oswego canals, and the Great Central railroad to Buffalo.

Another line from Cape Vincent opposite Kingston to Rome in the State of New York is in contemplation, where it will unite with both the Erie canal and the New York central line of roads, and thence the trade will reach Boston or New York at the option of the forwarders.

All these vast schemes of internal improvement have for their object the western trade.

Among the rival routes above referred to, there are several which have for their direct object the trade of the St. Lawrence, and will if not counteracted, divert a large portion of it from your canals, and Canada East.

In what light is the Ogdensburg road to be regarded, which is to form a direct railway communication from the St. Lawrence at that place to Boston? The great advantages of this line it is maintained by its friends consists in its ability to divert the trade of the upper province from its legitimate channel, the St. Lawrence.

(To be continued.)

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Wrought Spikes and Nails, from 3 to 10 inches,  
manufactured by the subscriber's Patent Machinery,  
which after five years' successful operation, and now  
almost universal use in the United States (as well  
as England, where the subscriber obtained a patent)  
are found superior to any ever offered in market.

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such a state of perfection that no an-  
noyance from sparks or dust from the  
chimney of engines on which they  
are used is experienced.

These Arresters are constructed on  
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smoke and sparks passing through the chimney, and by the centrifugal  
force thus acquired by the sparks and dust they are separated from the  
smoke and steam, and thrown into an outer chamber of the chimney  
through openings near its top, from whence they fall by their own  
gravity to the bottom of this chamber; the smoke and steam passing  
off at the top of the chimney, through a capacious and unobstructed  
passage, thus arresting the sparks without impairing the power of  
the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use  
on the following roads, to the managers and other officers of which we are at liberty to refer those who  
may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintend-  
ant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and  
Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norrit-  
town Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wil-  
mington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.;  
W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensse-  
laer, Engineer and Sup't Hartford and New Haven Railroad; W. R. McKee, Sup't Lexington and Ohio  
Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Mo-  
tive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabeth-  
town and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah,  
Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad,  
Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, Presi-  
dent Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whit-  
ney, of this city or to Hinckley & Drury, Boston, will be promptly executed. **FRENCH & BAIRD.**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasona-  
ble terms. Philadelphia, Pa., April 6, 1844.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

**PATENT HAMMERED RAILROAD, SHIP**  
and Boat Spikes. The Albany Iron and Nail  
Works have always on hand, of their own manu-  
facture, a large assortment of Railroad, Ship and Boat  
Spikes, from 2 to 12 inches in length, and of any form  
of head. From the excellence of the material al-  
ways used in their manufacture, and their very gen-  
eral use for railroads and other purposes in this coun-  
try, the manufacturers have no hesitation in warrant-  
ing them fully equal to the best spikes in market,  
both as to quality and appearance. All orders ad-  
dressed to the subscriber at the works, will be prompt-  
ly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of  
Erastus Corning & Co., Albany; Hart & Merritt,  
New York; J. H. Whitney, do.; E. J. Eting, Phil-  
adelphia; Wm. E. Coffin & Co, Boston. ja45

**MACHINE WORKS OF ROGERS,**  
Ketchum & Grosvenor, Paterson, N. J. The  
undersigned receive orders for the following articles,  
manufactured by them of the most superior descrip-  
tion in every particular. Their works being exten-  
sive and the number of hands employed being large,  
they are enabled to execute both large and small or-  
ders with promptness and despatch.

#### Railroad Work.

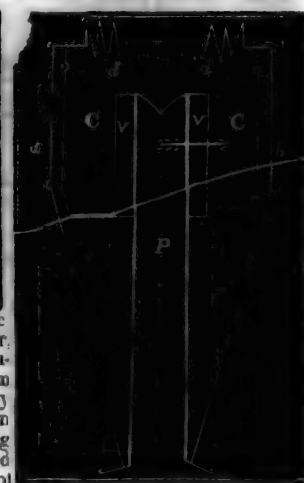
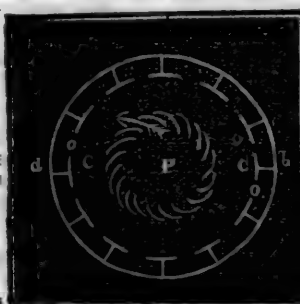
Locomotive steam engines and tenders; Driving  
and other locomotive wheels, axles, springs & flange  
tires; car wheels of cast iron, from a variety of pat-  
terns, and chills; car wheels of cast iron with  
wrought tires; axles of best American refined iron;  
springs; boxes and bolts for cars.

#### Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns,  
style and workmanship.

Mill gearing and Millwright work generally;  
hydraulic and other presses; press screws; callen-  
ders; lathes and tools of all kinds; iron and brass  
castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
a45 Paterson, N. J., or 60 Wall street, N. York.





# DAVENPORT & BRIDGES'

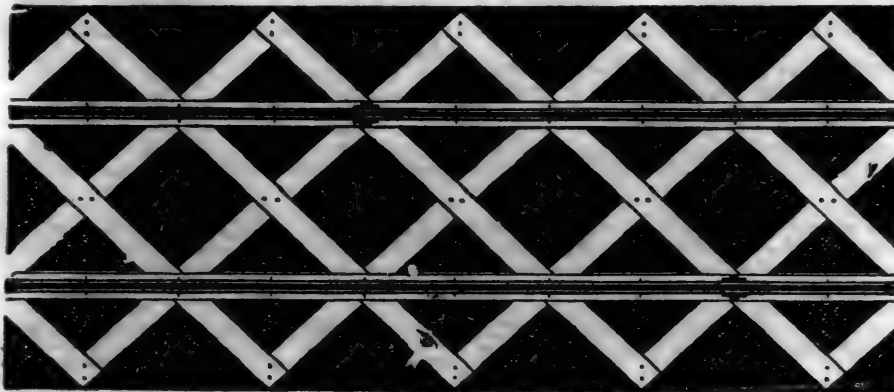
CAR WORKS, CAMBRIDGEPORT, MASS.



Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.  
Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trallis is 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trallis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trallis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.		
4,224 Timbers, 11 ft. long, 3 x 6 inches =	68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =		101 25
Workmanship free of patent charge =		600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

**JAMES HERRON.**  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia. 33f

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,

below Walnut,  
Philadelphia.



**THE SUBSCRIBER** has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

**ANDREW MENEELY.**

West Troy, May 12, 1847.

1y\*21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**

12f

Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

**MURDOCK, LEAVITT & CO.,**

Agents.

1y48

77 Pine St., New York.

**LAWRENCE'S ROSENDALE HYDRAULIC** Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight paper-barrels, by **JOHN W. LAWRENCE,**

142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 1y

**RAILROAD IRON AND LOCOMOTIVE** Tyres imported to order and constantly on hand by **A. & G. RALSTON**

Mar. 20f

4 South Front St., Philadelphia.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

**ANDREW C. GRAY,**

a45

President of the Newcastle Manuf. Co.

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

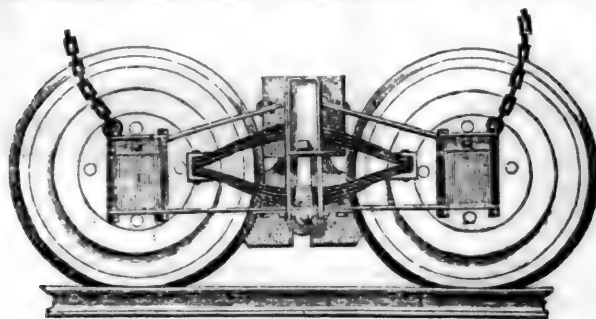
**SAM'L KIMBER & CO.,**

Willow Street Wharf,

Philadelphia, Pa.

1u

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

## ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—

for sale or imported to order by the subscriber.  
These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. OZ.	INCH.	LBS. OZ.		LBS.	INCH.	Tons.
11	4½	13 5	10	21 -		50	15-16	20
13	3½	9 3	8½	16 -		27	11-16	13½
14	3½	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2½	4 3	6	8 8		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,

Reading, Pa.

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

(Signed,)

WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

(Signed,) G. A. NICOLL,

Supt. Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

(Signed,) T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car. For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

(Signed,)

JOHN LEACH,

Jamaica November 12, 1845.

1y19

Sup' Motive Power.

## THE SUBSCRIBERS, AGENTS FOR

the sale of

Codorus,

Glendon,

Spring Mill and

Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846.

(1y4)

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,

245 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

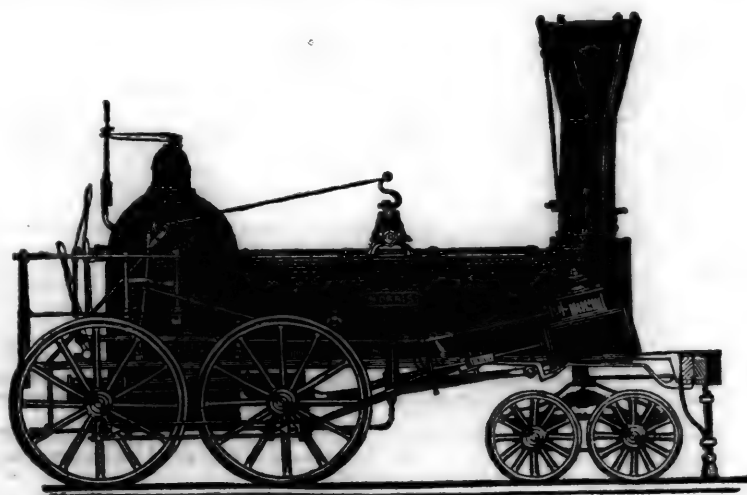
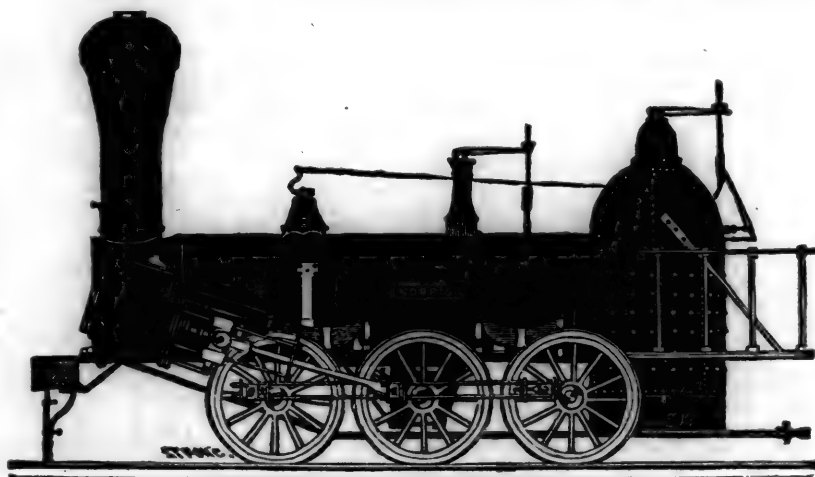
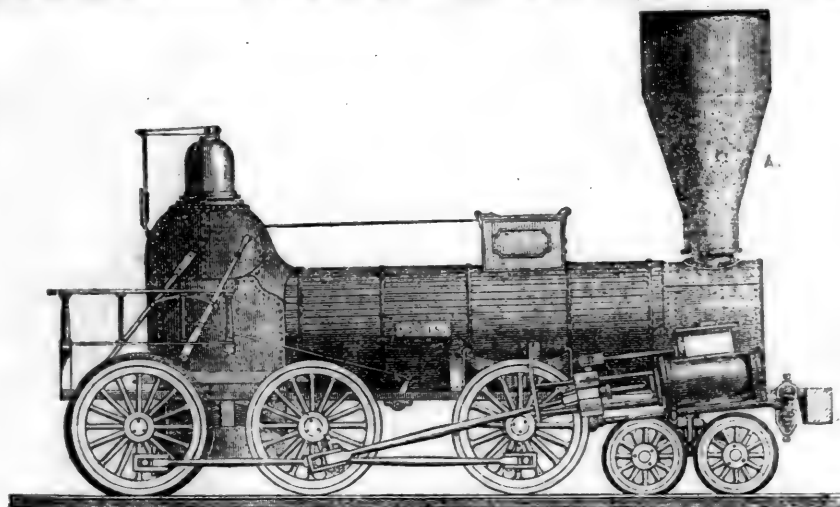
PETER COOPER 17 Burling Slip.

1y10

New York.



# NORRIS' LOCOMOTIVE WORKS. BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



**MANUFACTURE** to order Locomotive Steam Engines of every plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,

12 Platt street, New York.

JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 281f

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,

Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,

Philadelphia.

ROBERT NICHOLS, Agent,

No. 79 Water St., New York.

261f

**P**ATENT INDESTRUCTIBLE WATER

Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

281f

J. BALL & CO.

**K**EARNEY FIRE BRICK. F. W.

BRINLEY, Manufacturer, Perth Amboy N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire, }  
Peter Cooper, } New York.

Murdock, Leavitt & Co. }  
J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. }  
Colwell & Co. } Philadelphia, Pa.

J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. }  
Eagle Screw Co. } Providence, R. I.

William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark N. J.

Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35



## PATERSON RAILROAD

Summer Arrangement.

Commencing April 20th, 1847, the cars will leave

Paterson at New York at

8 o'clock a.m. 9 1/2 o'clock a.m.

11 1/2 o'clock a.m. 12 1/4 o'clock p.m.

4 o'clock p.m. 5 1/2 o'clock p.m.

On Sunday.

8 o'clock a.m. 9 1/2 o'clock a.m.

4 o'clock p.m. 5 1/2 o'clock p.m.

251f

Office 75 Courtlandt St.





**BALTIMORE AND OHIO RAILROAD.****MAIN STEM.** The Train carrying the

Great Western Mail leaves Bal-

timore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills,

Frederick, Harpers Ferry, Martinsburgh and Han-

cock, connecting daily each way with the Wash-

ington Trains at the Relay House seven miles

from Baltimore, with the Winchester Trains at

Harpers Ferry—with the various railroad and

steamboat lines between Baltimore and Philadelphia

and with the lines of Post Coaches between Cum-

berland and Wheeling and the fine Steamboats on

the Monongahela Slack Water between Browns-

ville and Pittsburgh. Time of arrival at both Cum-

berland and Baltimore 5½ P. M. Fare between

those points \$7, and 4 cents per mile for less distan-

ces. Fare through to Wheeling \$11 and time about

36 hours, to Pittsburgh \$10, and time about 32 hours.

Through tickets from Philadelphia to Wheeling

\$13, to Pittsburgh \$12. Extra train daily except

Sundays from Baltimore to Frederick at 4 P. M.,

and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. \$13y1

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and

after Monday, September 20th,

until further notice, a Passenger

train will run as follows:

Leave Cincinnati daily at 9 A. M., for Millford,

Foster's Crossing, Deerfield, Morrow, Fort Ancient,

Freeport, Waynesville, Spring Valley, Xenia, Yel-

low Springs, and Springfield. Returning, will leave

Springfield at 4½ a.m. Upward train arrives at

Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore &amp; Co. are running the fol-

lowing stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheel-

ing, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanes-

ville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine &amp; the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage,

over a good Summer road.....32 "

From Bellefontaine to Sandusky city by

railroad.....102 "

FARE—From Cincinnati to Lebanon.....\$1 00

" " " Xenia.....1 50

" " " Springfield.. 2 00

" " " Columbus... 4 00

" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader &amp; Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

47u W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and

Afternoon Trains between Balti-

more and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.

Arrives at.....9 a.m. and 6½ p.m.

Leaves York at.....5 a.m. and 3 p.m.

Arrives at.....12½ p.m. and 8 p.m.

Leaves York for Columbia at...1½ p.m. and 8 a.m.

Leaves Columbia for York at...8 a.m. and 2 p.m.

**FARE.**

Fare to York.....\$1 50

" Wrightsville.....2 00

" Columbia.....2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND****HARRISBURG.**

Through tickets to Pittsburg via stage to Har-

risburg.....\$9

Or via Lancaster by railroad.....10

Through tickets to Harrisburg or Gettysburg... 3

In connection with the afternoon train at 3½ o'clock,

a horse car is run to Green Spring and Owing's

Mill, arriving at the Mills at.....5½ p.m.

Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, Sup't.

Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily,

at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lex-

ington daily, at 8 o'clock a.m. and 2 p.m. Dis-

tance, 26 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from

Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to

15th March) is 6 o'clock a.m. from Lexington, and

ma. 9. from Frankfort, other hours as above. 35ly1

**CENTRAL AND MACON AND WEST-**

ern Railroads, Ga.—These Roads with the

Western and Atlantic Railroad

of the State of Georgia, form a

continuous line from Savannah to Oothcaloga, Ga.,

of 371 miles, viz:

Savannah to Macon—Central Railroad.....190

Macon to Atlanta—Macon and Western.....101

Atlanta to Oothcaloga—Western and Atlantic... 80

Goods will be carried from Savannah to Atlanta

and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope,

Butter, Cheese, Tobacco, Leather, Hides, Cotton

Yarns, Copper, Tin, Bar &amp; Sheet Iron, Hollow Ware &amp; Castings.....\$0 50

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish,

Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind

Stones.....0 50

On Measurement Goods—Boxes of Hats, Bonnets and Fur-

niture, per cubic foot.....0 20

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints,

Drugs and Confectionary, per cubic foot.....0 20 pr. 100lbs. 35

Crockery, per cubic foot.....0 15 " " 35

Molasses and Oil, per hhd., (smallercasksinproportion) 9 00

Ploughs, (large) Cultivators, Corn Shellers, and Straw

Cutters, each.....1 25

Ploughs, (small) and Wheelbarrows.....0 80

Salt, per Liverpool Sack.....0 70

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price,

Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R.

Savannah, At 3. 15th, 1846.

1734

**CENTRAL RAILROAD—FROM SAVAN-**

nah to Macon. Distance 190 miles.

This Road is open for the trans-

portation of Passengers and

Freight. Rates of Passage, \$8 00. Freight—

On weight goods generally... 50 cts. per hundred.

On measurement goods.....13 cts. per cubic ft.

On brls. wet (except molasses and oil).....\$1 50 per barrel.

On brls. dry (except lime)... 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed

machinery.....40 cts. per hundred.

On hhds. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd.

On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,

y40 Gen'l. Supt. Transportation.

**SOUTH CAROLINA RAILROAD.—A**

Passenger Train runs daily from Charleston,

on the arrival of the boats from

Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily.....\$26 50

Fare through from Charleston to Huntsville,

Decatur and Tuscumbia.....22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr, Agent.

25

THE WESTERN AND ATLANTIC

Railroad.—This Road is now in operation to

Oothcaloga, a distance of 80 miles, and connects

daily (Sundays excepted) with the Georgia Rail-

road.

From Kingston, on this road, there is a tri-weekly

line of stages, which leave on the arrival of the cars

on Tuesday, Thursday and Saturday, for Warren-

ton, Huntsville, Decatur and Tuscumbia, Alabama,

and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga

for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,

Chief Engineer.

Atlanta, Georgia, April 16th, 1846.

1y1

**NEW YORK AND PHILADELPHIA RAIL-**

road line—direct. Via Newark, New Bruns-

wick, Princeton, Trenton,

and Bristol. (Through in

six hours.) Leaving New York daily from the foot

of Liberty street.

Morning line.....9 o'clock a.m.

Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change

of cars, and thence by the new steamer, "John Sie-

vens," to Philadelphia.

FARE BETWEEN NEW YORK &amp; PHILA.

First class cars.....\$4 00

Second class cars.....3 00

Passengers will procure their Tickets at the office

foot of Liberty st., where a commodious steamboat

will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each

passenger in this line, and passengers are expressly

prohibited from taking anything as baggage but

their wearing apparel, which will be at the risk of

the owner.

Philadelphia Baggage-crates are conveyed from

city to city, without being opened by the way. Each

train is provided with a car, in which are apart-

ments and dressing rooms expressly for ladies' use

Returning, the lines leave Philadelphia from the

foot of Walnut st. at 9 a.m. and 4 1-3 p.m.

The lines for Baltimore leave Philadelphia daily

except Sundays, at 8 a.m., 3½ and 10 p.m., and Sun-

days only at 10 p.m.—being a continuation of the

line from New York.

254f





# AMERICAN RAILROAD JOURNAL, AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY  
AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. III., No. 52

SATURDAY, DECEMBER 25, 1847.

[WHOLE No. 601, VOL. XX.]

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, December 25, 1847.

**T. & C. WASON**, Manufacturers of every style of Freight and Baggage Cars.—Forty rods east of the depot, Springfield, Mass.

Running parts in sets complete, Wheels, Axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N.B. Particular attention paid to the manufacture of the most improved Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Mass., Railroads, where our cars are now in constant use.

Dec. 25, 1847.—1y.

## THE CLOSE OF THE VOLUME.

This number—and the Index, which will soon be ready—will complete the volume—and the *fifteenth* year since the Journal was commenced. The change produced in Europe, and in this country, within that period, by the construction of railroads, though partially visible to the eye, can hardly be estimated.

By referring to the first number of the Journal—dated January 2d, 1832—we find that there were then in use the following roads, viz:

Baltimore and Ohio.....	61 miles.
Albany and Schenectady.....	12 "
Charleston, S. C.....	20 "
Manch Chunk.....	9 "
Quincy, Mass.....	6 "

Making in this country about..... 108 miles, while there was not then half that extent in all Europe completed; whereas now there is in this country at least four thousand five hundred miles in constant use, and about six thousand miles completed in Europe—by which the mode of travelling and the transaction of business is nearly revolutionised.

We find, also, that coal was selling in New York at that time, for *fifteen dollars* a ton! and hickory

wood at *thirteen dollars* a cord!! Whereas, at the present time, the first may be got for \$5.50 to \$6 per ton, and the latter at \$7 per cord, delivered. Then the people of New York paid, in winter, 6 to 8 cents a quart for milk, but now they get a better article for 4 to 5 cents. The evidence, of the advantage of railroads to the people of New York, may be inferred from the amount of a single article carried on the New York and Erie road, during the past year, viz: *ten million quarts of milk*—which at the former average price, six cents, would be \$600,000, and at the present average price, 4½ cents, the saving, on what passes over this road alone, will be \$150,000 a year—but, as not more than one-third, if even that proportion, of the milk used in the city comes by this line, the aggregate of economy to the people of New York, on milk alone, one of the smallest items of expense of house-keeping, is over \$450,000 a year!! But New York is not alone. If such are the advantages to New York, from her short lines now in use, how much greater will they be when her roads, now under way, shall be completed.

So with Boston, Philadelphia, Baltimore, Richmond, and other cities, as well as the vast interior of our wide spread country, are just beginning to derive the advantages of the railroad system; and, therefore, we may look for an extension of it, during the ensuing fifteen years, scarcely anticipated now, even by the most sanguine; and may we not venture to hope that the *RAILROAD JOURNAL* will grow with the growth, and strengthen with the spread, of the system?

## A WORD TO ALL.

**Missing Numbers.**—We again remind our subscribers that we shall cheerfully supply missing numbers for the current and past volumes—if we have them to spare—on receiving a list. It is much more easy to supply them now than at any future period.

If we have omitted to comply with any of the applications heretofore made for missing numbers, it has arisen from inability at the time—not from indisposition—it may therefore be worth the labor of furnishing a new list, as we have received many loose numbers of back volumes, from which they may possibly be supplied.

We learn, from the *Detroit Advertiser*, that the Central railroad company have determined to build, during the winter, a steamer to run between Detroit and Buffalo, in connection with the road. The boat

is to be of 1000 tons burthen, and built expressly for speed and strength.

## Novel Speculation.

A mercantile house at Berlin has proposed to all the railway companies of Germany to supply all their carriages with silk blinds for nothing. They simply propose to reserve to themselves the right of changing the blinds as often as they please, and they require the companies to engage themselves not to accept, during fifty years, either for money or gratuitously, any blinds but theirs. Their object is to cover the blinds with advertisements.

## Baltimore and Ohio Railroad.

Engineer's and Superintendent's Report.

We complete, in this number, this able and useful report, with the exception of the tables.

From this report it appears that the *plate rail* east of Harper's Ferry, is fast disappearing—and the *Ω* rail is laid in its stead, a measure highly important, as will be seen by the tabular statement, showing the comparative cost of keeping the road in repair. There appears to have been a great care given to the business of the road, and to the classification of the expenses of working it. The comparative cost, of repairs of locomotives, appears to be decidedly in favor of those termed *first* and *second* class, or the heavy engines. The same may be said of the expense of working them.

This report may be profitably consulted by all who are engaged in the management or construction of railroads.

## Gauge Question.

We complete, in this number, Mr. Morton's able report on this question. It has been divided into several parts, to avoid filling up two or three numbers with one subject; yet it is completed in this volume, and may therefore be referred to, when bound, without inconvenience.

Mr. Morton has labored with industry and ability to establish his positions, and has been successful with his directors, who have adopted the *5½ feet* gauge. The New York and Erie company have also decided to continue their work on the original—*six feet*—gauge; and Mr. Brunel has succeeded in extending his favorite—*seven feet*—gauge, from Gloucester in the direction of Birmingham, by means of the "*mixed gauge*," or three rail track, by which both the broad and narrow gauge trains can pass over the line. Upon this road, if upon any, we should think this vexed question might be thorough-

ly tested, as the grades, curves and construction of the road are the same. Now let the best engines of the different gauges be placed in the hands of disinterested persons, who will give them a fair trial, without regard to the makers, or railroad companies, and then make a full report. Not that such a course will bring about a *uniformity*, and remove the difficulty of the present diversity, of gauge, but it will enable those who hereafter construct roads in the new States to adopt the most useful width.

#### Schuylkill Coal Trade.

PHILADELPHIA AND READING RAILROAD.—Amount of coal transported during the week ending Thursday, December 16, 1847.

	Tons, cwt.
From Port Carbon.....	5,578 17
" Pottsville.....	2,095 01
" Schuylkill Haven.....	9,871 08
" Port Clinton.....	1,826 15
Total for week.....	19,371 11
Previously this year.....	1,307,083 07
Total.....	1,326,454 18

#### Bituminous Coal—The Moshannon Basin.

The importance of the coal trade of Pennsylvania is just beginning to be appreciated—though still quite in its infancy—yet there are very few indeed on this side of the mountain, who know anything of the riches of the *bituminous* coal fields of the State.

Much has been said of the bituminous coal fields of Maryland and Virginia, and sometimes those of Ohio are spoken of—but there is comparatively little known to us—who are so familiar with the *anthracite*—about the much more extensive regions of bituminous coal in the interior of the State, for the reason, we suppose, that there has been no cheap and easy mode of getting it to an eastern market. The time is not distant, however, we hope, when there will be a supply of this very desirable article in all the Atlantic cities; that those who prefer the cheerful blaze of bituminous coal to anthracite, may have it at a reasonable rate. There is a fair prospect, we infer, from the following communication, that there will soon be an opening to the *Moshannon* basin—which we understand to be the easiest of access from this side of the Allegheny mountain—from which an ample supply may be obtained through the medium of the Pennsylvania canals and the Central railroad, by the construction of a branch of only ten miles. This branch may be made probably for less than \$10,000 a mile—and, when made, will be profitable to its stockholders, if the coal mines are—as they surely will be—properly worked; and we shall feel that we have done good service to the many, if we can be in any way instrumental in directing attention to the subject, and of getting the coal into the market—but to the remarks of X. Y. Z.

For the American Railroad Journal.

#### The Moshannon Bituminous Coal Basin.

This is the most eastern of the series of bituminous coal basins, which, lying on, and west of the Allegheny mountain, extend through Pennsylvania down to the Gulf of Mexico. As its centre coincides very nearly with the course of the Moshannon creek in Centre and Clearfield counties, the strata on each side dipping gently towards the stream, it may, for convenience, be called the "*Moshannon Bituminous Coal Basin*."

The coal of the many veins of this basin differs. The structure of some is columnar, the strata distinct, lustre jet black and shining; others are massive, with an irregular fracture. It is generally of a sound texture, and will afford solid blocks of the thickness of the beds, and as much as eight feet long.

The coal from some of the veins is uncommonly free from sulphur and slate, and is exceedingly well adapted to domestic purposes, burning in grates, stoves, etc.; some for the generating of steam, and others for smithing and the making of iron. It kindles easily and quickly; burns with a bright blaze; has very little ashes, and gives off but little or none of the soiling, black smoke of the Liverpool and other bituminous coals. In the production of a bright beautiful fire, combining heat, cleanliness, cheerfulness, ease of kindling, length of burning without replenishing, it is unrivalled. It yields as pure a coke as any known coal.

There is one vein of nine feet thickness; two of six; one of four feet four inches; one of four feet, and several others.

The *dip* is so slight as to afford uncommon facilities for mining. It is now mined in considerable quantities at a very small cost. Drifts are cut into the sides of the hills at such an angle as will allow of just sufficient fall for draining. The veins are all *level free*, i.e., they drain themselves: thus avoiding the great expense incurred in some districts in raising both the coal and water by steam power.

The veins of coal are interstratified with limestone, iron ore, fire clay, slate and sandstone. A brown iron ore is found loose in the fields over a large extent of country.

The Moshannon coal basin may be considered to be from twenty-five to thirty miles in length, and seven to nine in breadth. Its southern boundary, however, is not well defined, as it runs into the Clearfield basin; which in like manner unites with others southwesterly.

In quantity the coal is inexhaustible. This one basin will afford a supply for any demand that will probably exist for many centuries.

The coal veins along the southeast side of the basin, near the top of the mountain, do not correspond exactly with those above described. They have been developed in the dividing ridge, called "*Coal Hill*," between the *Cold Stream* and *Trout Run*;—streams flowing into the Moshannon. This elevation slopes gently from the west side of the Allegheny, opposite to both "*Emigh's Gap*" and "*Miller's Gap*;" the former being the *lowest depression* of the Allegheny range.

The seams of coal in Coal Hill have been estimated to occupy as much as sixteen square miles of surface in the country between Trout Run and Cold Stream. Its position is exceedingly advantageous, as the PENNSYLVANIA RAILWAY, now constructing, will approach within *ten miles* of its mines. By this means this vast bituminous coal basin will soon be open to the Atlantic markets. A railway of ten miles in length, with grades all descending towards the Juniata river, and fifteen miles, or less, of the Pennsylvania railway, will enable the coal to be loaded into boats of 80 tons burden, on the Juniata canal at Petersburg, in Huntingdon county. The route will be, from "*Coal Hill*" to Petersburg, 25 miles, by railway; thence, 183 miles to *Havre de Grace*, by the Juniata, Susquehannah, and Tide Water canals. The completion of the Pennsylvania railway to Logan's Narrows, and the construction of the branch of ten miles, will, it is believed, render the Moshannon coal field equally if not more accessible to tide water than any other bituminous coal in the United States. The facilities for mining are such, and the advantages of its position are so great, that it will probably be sold at a lower rate in the cities of the seaboard than any other coal of its class.

A variety of circumstances has caused the anthracite coal basins of Pennsylvania to attract much at-

tention, while the bituminous coal fields have scarcely been noticed. Much has been said in vague terms of the great mineral wealth of the State; but comprehensive and accurate knowledge on the subject is rare. The statistics of anthracite coal have been industriously collected and extensively published; those of bituminous are known to but few. It is thought that if it will not be one of the least of the benefits which will accrue from the *Pennsylvania railway*, that it will bring to public view and use the vast undeveloped resources of the "*Moshannon Coal Field*."

According to the census of 1840, 920,136 tons of bituminous coal were mined in 1830 in the United States. Of this, 387,355 tons were mined in Pennsylvania. Since then the amount has greatly increased. X. Y. Z.

#### Cast Iron Rails.

We find in the London Mining Journal, for 12th August, the following description and illustration of a cast iron rail, invented and patented in this country by Mr. Richard Imray, of New York, and in England by Mr. Egbert Hedge. There have been, and are now, serious objections to the *cast* rail, arising from the belief that they are not safe; and therefore they have not had, as we think, a fair trial.

This plan, it will be seen, is different from any that has been tried before. The rail has not only a broad bearing upon the wood, but it is also confined between two pieces in such a way that, even if it should break, it cannot get out of place, and the trains will pass as safely over them when in short pieces as in whole lengths; but they are not very liable to break, as we had an opportunity to learn recently, by examining the Harlem railroad in New York, between 28th and 30th streets, where they have been in use more than a year, not only subject to the passing of trains on, but also of loaded carts across, them, without a single fracture that we could see.

Being without the figures, we cannot give the comparative cost of this description of road; yet we consider the plan deserving consideration, and therefore ask for it the attention of our readers.

[Specification of patent granted to EGEBERT HEDGE, No. 9 Howard street, in the parish of St. Clement's Dunes, Middlesex, gentleman, for certain improvements in rails for railroads, and in the manner of securing them.]

Fig. 1.

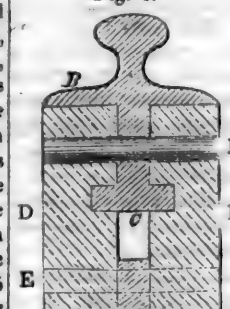
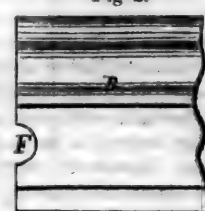


Fig. 2.



This invention consists, first, in a new form and construction of rail; and, secondly, in the mode of securing such rails to their longitudinal sleepers, by imbedding the lower portion of the entire length of each rail in sleepers, grooved to receive such part in the manner exhibited by the drawing in Fig. 1, which represents a transverse and vertical section of a rail and sleepers. It will be seen upon referring to this figure, that the rail is formed with (what the inventor terms) an upper table (B) and under table (C), and that the shoulders of the upper table rest upon the upper edge of each of the longitudinal timbers (DD),



which have grooves formed therein, and extending throughout the entire length of each sleeper, for the purpose of receiving that portion of the rail termed the under table (C), which, when placed therein, is firmly secured in this position, by pins or keys (E) being passed through holes in the sleepers, as shown at Fig. 2. At the points of junction of each length of rail, the inventor proposes making the upper table (B) of the rail wider than the other part; and there are 'half-round' holes (F) formed at the ends of each rail, which, when brought together, form an entire hole, into which a pin or key (G) is passed, the ends resting in holes in the sleepers (DD), as shown. This arrangement, whilst it serves to connect each length of rail together, allows it lateral movement for expansion and contraction. The inventor proposes employing rails of cast iron, except at those parts of a line of railway where crossings are required, in which case he proposes to employ wrought iron rails of the ordinary form, and laid in the usual manner. The inventor claims—firstly, a rail, with an upper and under table and shoulders, as described. Secondly, the clamping of rails in sleepers, grooved and keyed, as described. Thirdly, the combination of rails and sleepers as described.

*Patent Office & Designs Registry*  
310, Strand, August 18. }

#### Rolls for Rolling Iron.

The following is the plan and patent of Thomas Payne, of Wandsworth, England, for improvements in rolls for rolling mills: It is from the London Mining Journal. He says—

"The invention relates to improvements in the mode of rolling iron and other metals. In constructing rolls for such purposes, it has heretofore been used to cast rolls with necks, or axles at their ends, such necks or axles being liable to be broken when in use; and it has also been attempted to cast rolls on to bars of iron, such rolls of iron being intended to strengthen the axles or necks of the rolls; but in all such cases the inventor states that bars of iron so used are much injured, being weakened, and unfit for such purposes; but in order that the important peculiarities of his invention may be more fully understood, he has given (which he believes to be) the present mode of manufacturing the rolls aforesaid, that is to say—in carrying his invention into effect, the inventor states that in casting rollers, of any given size required, it will be necessary to leave the interior of any such roller hollow, so as to admit of the shaft or axis being passed through, and fixed therein by keys or otherwise; care being taken in casting, that the hollow space within a roller is cast or formed truly, so that the shaft when introduced shall fit accurately, allowing spaces for driving in wedges or keys at the end of the roll, which keys should be securely retained from moving by shrinking wrought iron collars on the shaft or axles; the working journals are turned in the wrought iron shafts, after keying on the rolls, and the surfaces of the rolls turned; by which means of manufacturing rolls for rolling iron and other metals the inventor is enabled to obtain them with stronger necks or axles. The wrought iron shafts or axles are passed through hollow rolls, which the inventor prefers to be cylindrical openings in the cast iron rollers, but the inventor does not confine himself thereto, as other shapes may be used; but he

claims the manufacture of hollow cast rolls for rolling iron and other metals, and fixing thereunto wrought iron shafts or axles, as hereinbefore described."

#### Gauge, or Width of Track for Railroads. *Report on the Gauge for the St. Lawrence & Atlantic Railroad. By A. C. Morton, Esq., Chief Engineer.*

*Continued from page 805.*

An able advocate of this road in a document published in Boston, after dwelling upon the difficulties of the navigation of the St. Lawrence below Ogdensburg, the objections to the canals, and the importance of the trade of the upper province, observes, "for these reasons the Ogdensburg route to Boston would have a decided preference over the Montreal route to Portland. But if the western trade can go by Montreal at all, and is permitted to go there, then there is no probability that Boston would take any share of it. Preference of course would be given to the British carrying trade so far as legislation could do it, and if any portion of it must find an outlet at an American port, no doubt Portland would be the place."

From this it appears that if the trade of the upper province is permitted to go down the St. Lawrence river, or through our canals, it would, in that case, not be likely to reach that American port, but would find its way to the ocean in British vessels.

It has been suggested that the Ogdensburg road would not materially affect the business of the canals; for the construction of a road from Montreal to the boundary line, in the direction of Burlington, connecting with the Ogdensburg road, would open a communication whereby the trade would come through the canals to Montreal and onward to Boston.

It is hardly reasonable to suppose that trade will pass the Ogdensburg road, and take so circuitous a route, going an increased distance of 60 or 70 miles, passing Montreal, and thence in order to reach Boston, return to the same road at lake Champlain.

This is manifestly well understood by the capitalists who have embarked in the construction of the great line to Ogdensburg, and they are fully aware that the trade must be taken by them from the St. Lawrence at Ogdensburg, or the great mass will never reach Boston.

The distance from the St. Lawrence river at Ogdensburg to lake Champlain by the Ogdensburg road, thence over the several lines of railway to the seaboard at Boston, will not differ materially from the distance from the same point by the Saint Lawrence river to Montreal, thence over your road to the seaboard at Portland. The question, therefore, as to which channel of communication the western trade will take to the seaboard seems nicely balanced, and it will preponderate to that route which will furnish the greatest facilities, and the cheapest mode of transportation.

All the rival lines of the States which approach the frontier between Buffalo and Ogdensburg will exert their influence in favor of a narrow gauge in Canada, not because

it is the best, but from the fear of the great superiority of a wider gauge, and their inability in case it is adopted, to compete so successfully in drawing off your trade. The countries are separated by natural boundaries—the great lakes and the St. Lawrence river from lake Superior to St. Regis—and at no point within these limits is it practicable, consistent with the navigation of the river, to connect the railways of the States with those of Canada, except at Niagara Falls.

Although it is proposed to erect a suspension bridge at this point, whereby a connection may be formed with these railways, yet I am fully convinced that no railway company in Upper Canada will ever find it for their interest to allow their cars to cross Niagara river, for the purpose of running over the numerous roads of New York and Massachusetts, a distance of five hundred miles to the seaboard. This, with reasonable economy and despatch, is impracticable. There must, unavoidably be a change, and the probable point would, in this case, be at Niagara river. And I am informed by a person of high standing connected with the lines in Upper Canada that it is not contemplated that their cars, except baggage cars, will run over the roads of New York. I have already shown that there would be no necessity, even for this, were the same system of transferring baggage adopted here as on other main lines of the United States. The great business of the roads of Upper Canada will be in connection with your lake, river and canal navigation, and with the roads of the lower provinces.

In deciding on a system of railways for the provinces, which are to co-operate with the river and the canals, in contending against these powerful rivals for the western trade, it becomes a question of vital importance to the people of Canada, that your railways should have a greater capacity than those of your enterprising neighbors.

The St. Lawrence river and its auxiliaries—the stupendous canals of Canada—afford a line of navigation superior to any of your rivals, and should your various chartered railroads be constructed with the same liberal policy as regards capacity which characterize your canals, and the same regard to the great interests of the provinces at large, there need be no apprehension as to your ability to retain your own trade or to compete successfully for that of the lakes.

In this country there is about to be commenced a system of railways which will eventually extend thousands of miles. Already have lines been projected which reach from Halifax to lake Huron, passing the whole extent of the country, connecting your inland seas, rivers and canals, with your Atlantic coast, and joining all the provinces together in one iron band of union and commercial intercourse.

How important is it, therefore, in the commencement of this system, and before any of the links of this great chain are completed and fixed beyond remedy, that the subject of gauge should be definitely determined for all the provinces, and that it should be that which

the experience of every country in which railways have yet been constructed, has been found to be desirable, and above all, that which the position and wants of this country demand?

The question of gauge here is a different one from that in England, and many of the arguments which apply there with much force have no bearing on the subject here.

The agitation of the question there has been not as to the best gauge for an entire new system of railways, but generally a contention between two parties actuated and guided by personal feelings, and strong pecuniary interest, in favor of two extremes, neither of which it is generally admitted is what is wanted.

In recommending a gauge for your road, I have not been guided by a limited or sectional view of the provinces, but in reference to the state of the whole country, its wants and capabilities, and the adoption of such a width of track as experience seems to point out as desirable for a perfect railway.

The width (5½ feet) is not what is termed the narrow or broad gauge, but is such a medium that while it avoids the objections to both extremes it combines all the requisites of a most superior road.

It is such that while it affords to the public the most ample means of communication, superior in all respects to the generality of roads it does not by its greater capacity impose a burden or a tax on the smaller branches or unimportant lateral lines whose business may be less, and whose means of construction are limited.

Your road was regarded as one of great importance, forming part of the main trunk through the provinces; it was the first road commenced (except one of 15 miles length) in the country, and therefore in determining the gauge a great responsibility had to be assumed.

The arguments favoring an increased capacity for your road apply with corresponding force to all the railways of the provinces and it is not now too late to bring about uniformity.

In this view of the case, I would earnestly appeal to the opinions of engineers in England, and to the decision of the British government as furnishing the most full and convincing proof of the position I have maintained.

The experience of English engineers should and must have great weight with us in the discussion of this question, and we should turn our attention to their opinion, as no doubt forming the best grounds for a just estimate of the *value of gauge*. The question of the best gauge for Ireland was finally settled in 1843 by Major General Paisley, inspector general of railways. He obtained the opinion of engineers and engine builders of the greatest experience.

The opinions of the 14 gentlemen to whom he addressed his inquiries, showed conclusively that a wider gauge than 4 feet 8½ inches was the best. The average of their opinions was 5 feet 3 inches, and General Paisley decided upon this width, which has been adopted by parliament for Ireland.

Since that date the report of the gauge

commissioners has given us evidence that a still wider gauge than 5 feet 3 in. has advantages over a less width in reference to power and economy.

It is well known that the commissioners in the examination of the subject, came to the conclusion that, under the circumstances, there being 1901 miles of narrow, and only 274 miles of broad gauge, roads in Great Britain in operation, that in future all roads to be constructed should conform to the narrow gauge, and if a uniformity was required among those already constructed, the change should be from the broad to the narrow gauge. This conclusion was arrived at, not from the alleged superiority of the 4 feet 8½ in. gauge, over any intermediate one between it and 7 feet, but as the best means in their opinion of obviating the difficulty of a break of gauge in England.

But in connection with this part of the subject, the commissioners observe, "We are desirous however of guarding ourselves from being supposed to express an opinion, that the dimensions of 4 feet 8½ in., is in all respects the most suited for the general objects of the country."

The object of the inquiry was solely to devise means whereby under the particular circumstances in which the railways of England were placed, the real or supposed difficulty resulting from a break of gauge, might be remedied, and therefore no opinion was expressed by the commissioners as to the best gauge for a new system of railways in a country where few or none had yet been constructed.

The publication of the testimony taken before the gauge commissioners, brought the whole subject fully before parliament.

This testimony, with singular unanimity of opinion, established the desirableness of a wider gauge than 4 feet 8½ in.

No less than 19 out of 21 persons whose testimony was required on the *abstract question as to what gauge was in itself the best* gave opinions in favor of a greater width than 4 feet 8½ in. Parliament referred the report of the gauge commissioners to the lords of the committee of privy council for trade.

The board of trade, instead of advising entire uniformity of gauge as recommended by the gauge commissioners, say: "They are unable altogether to concur with the commissioners in the full extent of these recommendations," and further observe: "They would therefore recommend that the lines for which acts have been obtained, but which have not yet been completed, to the south of the line from London to Bristol, should be permitted to be constructed on the broad gauge as originally intended." And again add, "In suggesting therefore (with some exceptions to be specified) the adoption of the recommendation made by the commissioners, that the '4 feet 8½ in. gauge should be declared by the legislature to be the gauge to be used in all public railways,' hereafter to be constructed in Great Britain,' they do not conceive that any declaration on this point should be understood as positive and final. The working of the wider gauge established in

Ireland, and the future history of railways in other countries, may possibly prove the superiority of some other and intermediate gauge, while the advance of science and the course of experience may point out a practical method of altering an existing gauge, and of easily effecting a great operation which is now generally conceived to be so costly and so difficult as in truth to be impracticable."

The decision of parliament was a full vindication of the opinion of the most skilful engineers and engine builders in the kingdom. And parliament established on their recommendation a gauge of 5 feet 3 in. for Ireland where the question was open and unembarrassed.

The statute of 9 and 10 Vic., cap. 57, enacts, that 5 feet 3 in. shall be the gauge for Ireland, and that all railways southward of the line of the Great Western railway (from London to Bristol) shall be of the gauge of 7 feet, and that those north of this line, excepting certain independent lines and roads connecting with the Great Western, shall be of the gauge of 5 feet 8½ in.

This decision was all that the friends of the broad gauge could reasonably desire, and the deliberate judgment of the British parliament may fairly be considered as adopting a gauge of 5 feet 3 in. as abstractly the best.

Had parliament been called upon at the same time to establish a gauge for the provinces, there is little doubt they would have decided upon a gauge similar to that for Ireland.

The gauge for Canada should be wider than for Ireland. The same arguments which induced the adoption of 5 feet 3 inches there, would lead at least to 5 feet 6 inches here.—The power should be in proportion to the magnitude of the business to be done, and it is evident that the long lines of railways to be built in Canada will be required to transport a vastly larger tonnage than in a country of such limited extent as Ireland.

It should also be recollected that the nature of much of the freight in Canada which would pass over your roads is bulky and heavy compared with its intrinsic value, unless therefore it can be carried in large quantities, and consequently at comparatively a cheap rate, it cannot be transported at all, for the expense will absorb too much of its value.

These considerations fairly carried out, with reference solely to the question of capacity as affected by the gauge, would lead us to the adoption of a gauge wider perhaps than 5½ feet, but we have taken this limit in consideration of the question of expense, as applied to the branch lines, as well as to the long main lines which are to be constructed coupled with the opinions entertained by the respectable engineers above quoted and my own that 5½ feet will give every desirable advantage.

There appears to me no room to doubt this, and my sense of duty and regard to the interest of the stockholders, constrains me to urge all honorable means to secure to your road the advantages of the 5½ feet gauge.

In recommending a wider gauge than the prevailing one, I would not be understood as



desiring to erect any barriers, or interpose any obstacles to the accomplishment of the objects sought by the promoters of rival lines. For they, in fact, open communications to good markets for the people of Canada, and they will of course be benefited not only by these avenues, but by the competition likely to arise as rival lines are increased.

But what I would recommend is simply that you give to your own lines all the superiority over your rivals which the experience of England and America has shown to exist in a broader gauge, and leave to the enterprise of our neighbors to overcome these advantages as they best can.

I have the honor to be, Sir,  
Your obedient servant,  
A. C. MORTON,  
Chief Engineer.

From the London Mechanics' Magazine.

*Improvements in Blast Furnaces, patented by Mr. James Yates, Masborough, Yorkshire, December 14, 1846.*

The patentee states, that it is usual to keep the charge, in blast furnaces of ordinary construction, for as long a time as is comparable with the iron made; and that it is deemed beneficial to continue the cementing process, which is the result of the iron stone, or ore, and fuel, being subjected to a great degree of heat for several days; but that he believes this system of operation to be erroneous.

Again, under the system which has hitherto prevailed, furnaces are kept filled up to the funnel head, through which the flame and unconsumed products pass on escaping from the charge; and these furnaces are constructed in the form of two cones united at their bases, or of a cylindrical form at top; both of which forms of construction offer scarcely any obstacle to the free escape of caloric with the unconsumed products.

Now Mr. Yates proposes *firstly*, to arch in the upper part of the furnace, and diminish its height, in order that a very considerable portion of heat, instead of escaping as heretofore, may, after striking against the even surface of the dome, be deflected on the top surface, of the "burden" and absorbed by it. *Secondly*, to place feed doors, by which the material may be introduced in the side, at that point of junction between the dome and the bottom part of the furnace which allows of the largest surface of the burden being exposed to the action of the deflected heat (care being taken to maintain a sufficient and uniform space between the dome and the top of the "burden" for the purposes of reverberation); by which mode of charging the furnace the "burden" is hollow in the centre, and therefore offers less resistance to the blast, which is regulated by means of dampers suitably placed in the chimney. And *thirdly*, to employ a greater number of tuyeres, and to distribute them more equally round the hearth of the furnace than has yet been customary; and to provide each tuyere with a separate house, in order that the blast may act more regularly on the "burden."

The results of these alterations are stated to be saving in the prime cost of erection, and economy both in fuel and in engine power.

Mr. Yates instances a furnace, built according to his invention, which was 20 feet from the hearth to the top of the "burden," and had six tuyere pipes of seven eighths of an inch in diameter; with this furnace he produced, employing a hot blast at a pressure of 1 1/2 lbs. to the square inch, 110 tons of iron, from lean Derbyshire ore in one week.

The patentee proposes to adapt his plan of construction to existing furnaces, by building the dome in the top or other part of the shaft, and providing feed doors together with the necessary holes for the extra number of tuyere pipes.

After pointing out various modifications of which his invention is susceptible, such as, the substitution for tuyere pipes, of a circular passage, with grating to keep in the burden, Mr. Yates proceeds to describe a peculiar apparatus for feeding by the chimney instead of by side doors, which enables him to obtain the same result, viz: the distribution of the material around and upon, and not in, the centre of the burden. The apparatus referred to is fixed in the dome, and consists of a cone, having an aperture in its centre for the passage of unconsumed products, and is adjusted to the required size. The cone is made fast to a lever passing through the chimney, and weighted at the outside end;—so that when there is no disturbing force, its weight shall keep the cone wedged tight up into the dome, and leave no room for the escape of any vapor or caloric, except through the aperture. A feed box is suspended in the chimney, and has a conical bottom, similarly connected to a weighted lever, which, when the box is filled, falls down, and allows the passage of the material; the centre aperture of the under cone being covered by the bottom of the feed box. The weight of the material falling on the surfaces of the under cone, overcomes the weight at the end of the lever, and depressing the cone, passes into the furnace around the sides. When there is no longer any weight on either the cone portions of the dome, or the conical bottoms of the box, they both return to their places.

Other modifications described in this specification are, the connecting two or more furnaces to a common chimney, by flues provided with dampers to regulate the draught; the making the furnace of as great a diameter at the bottom, just above the hearth, as at the other point of junction with the dome, or even greater: and a peculiar construction of tuyere box, to avoid, in a great measure, the melting of the tuyere pipes.

The patentee describes, lastly, some improvements relating to steam engines and cylinders employed in blasting, which may be said briefly, to consist in working two engines together, by connecting the slide valves and rods of the one to the piston rod of the other, and *vice versa*, so that the piston at work shall open the valves of the one at rest—and in using an elastic cylinder attached immovably at one end of the main, and at the other to the piston rod. By the use of this elastic cylinder, Mr. Yates states that a more regular pressure of the blast may be obtained.

# Baltimore and Ohio Railroad.

Superintendent's Report.

Continued from page 507.

## BURDEN CARS.

The stock of freight cars of the different classes owned by the company is as follows: 314 eight wheel, weighing about 5 and carrying 6 tons each—50 four wheel house cars, weighing 2 and carrying 2 1/2 tons—57 cars for live stock, (24 of them divided by partitions for horses and cattle) weighing 5 and carrying 6 tons—163 eight wheel gondola or box cars, weighing about 4 1/2 and carrying about 8 tons—62 four wheel box cars, weighing 1 1/2 and carrying 2 1/2 tons—24 eight wheel bolster cars for lumber, weighing 2 1/2 and carrying 7 tons—30 eight wheel stone cars, weighing 3 1/2 and carrying 7 tons—25 four wheel stone cars, weighing 1 1/2 and carrying 2 tons—12 eight wheel platform cars for hauling iron, weighing 4 and carrying 7 tons—4 eight wheel cars for fire wood, weighing about 3 1/2 and carrying 8 tons—one iron eight wheel cylinder car for general freight, weighing about 6 tons and carrying 8 tons—one four wheel iron cylinder car for carrying gun powder, weighing about 2 and carrying 2 1/2 tons—201 six wheel iron hopper coal cars, weighing 2 1/2 and carrying 7 1/2 tons—one eight wheel iron hopper coal car, weighing 3 1/2 and carrying 8 1/2 tons—one four wheel iron hopper coal car, weighing 2 and carrying 5 tons and 37 wooden hopper coal cars, weighing 3 and carrying 7 tons—making 606 eight wheel, 238 six wheel, and 139 four wheel cars—and a total of 983 cars of all classes, and 6832 wheels. These cars are used indiscriminately upon the main stem and Washington branch, as they are wanted on either road, although a separate account of repairs is kept for each.

There have been 26 new cattle cars recently contracted for, and 20 house cars advertised for, the former of which will be placed upon the road before the end of the year, and the latter early in the ensuing year:

The cost of maintaining this establishment of cars, during the past year, has been

For the main stem.....	\$52,200 53
Less increase in stock of materials during year.....	3,320 56
	<hr/> \$48,888 97
For the Washington branch..	\$7,625 89
More decrease in stock of materials during year.....	1,954 30—\$9,580 19
Total for both roads.....	<hr/> \$58,469 09

The increase upon the corresponding amounts expended in 1846 is \$17,279 55, for the main stem, and \$2,555 42 for the Washington branch, making a total increase of \$19,834 97. This increase is accounted for, in part, by the increase in the number of cars in motion, and of duty performed by them, and in part by the greater extent to which the rebuilding of old and worn out cars was carried during the past as compared with the preceding year—the cost of rebuilding in 1846 being estimated at \$17,250, and in 1847 at \$27,050; a difference of \$9,800 in the value of permanent improvements to the stock. This would leave an increase of but \$10,034 97 to be charged to augmented business and wear and tear.

The cost of repairs per ton per mile, for tonnage of all kinds, including materials and fuel for the company, has been upon the main stem, .180 of a cent, in 1847, against .196 of a cent in 1846, without crediting 1847 with the deduction just stated to be its due, and which, if made, would reduce from .180 to .144. So that the duty done has been performed at a cheaper rate, notwithstanding the increase in absolute cost. The reason of this is simply, that the cars have carried fuller loads, and have been more constantly employed, especially in the coal trade.

The cost of repairs this year, upon both main stem and Washington branch, has been 2.10 of a cent per ton per mile, for all tonnage, including material and fuel for the company, and, excluding them, 23-100 of a cent. The cost of repairs of the iron coal cars has not equalled one tenth of a cent per ton per mile of coal carried.

#### PASSENGER CARS.

The present establishment of passenger cars is as follows—those of the main stem and Washington branch being distinct, although they occasionally are used upon either road in emergencies.

**Main Stem.**—11 thoroughfare cars, 7 ladies' cars, 3 cars to run next the baggage car and with an apartment for smoking, 4 baggage cars, 1 car with sleeping births, 2 mail cars, and 2 cars for carrying emigrants at reduced fare; all of the preceding cars have 8 wheels, besides which, there are 4 six wheel package express cars, making 34 cars in all.

**Washington Branch.**—12 thoroughfare, 2 ladies', 3 baggage, and 1 mail car, all with 8 wheels, and 2 six wheel express cars, making 20 cars in all; and the total for both roads 54 cars. In addition to the above stock, proposals have been invited for furnishing 2 baggage and 2 mail cars, which will be upon the road before the end of the year, and will increase the stock to 58 passenger cars of all classes.

The cost of maintaining the passenger car establishment in repairs, for the past year, has been as follows:

For the main stem.....	\$36,094 24
To which must be added for decrease in value of materials for repairs.....	573 66
	\$36,667 90
For the Washington branch..	\$11,915 16
Add for decrease in value of materials for repairs.....	293 33
	\$12,207 49

Total for both roads.....\$38,875 39

The increase upon the corresponding amounts expended in 1846, is \$7,635 42 for the main stem, and the decrease, the fractional amount of 22 cents, for the Washington branch. The increase is due, in a degree, to the increase of work which has amounted to about 20 per cent., but mainly to the more extensive renewals of the cars during the past year. In 1846 about \$8000 was expended in their renovation, and in 1847 about \$12,000, which accounts for an augmented expenditure of some \$4,000, or more than one half of the difference stated. This allowance

being made, the cost of these repairs per passenger per mile has been almost identical this year with that of the previous one. In 1846 it was .178 of a cent per passenger, and in 1847 .210 of a cent, without the deduction just named, and .179 of a cent with it.

#### STATIONARY MACHINERY AND SHOPS.

This branch of the machinery department has been already spoken of, under the head of *depots and buildings*, in the preceding division of this report; being now placed under the care of the master of machinery, as belonging more peculiarly to his department, it will hereafter be treated of in immediate connection therewith. The stationary machinery put up within the last year, has consisted of the smith's forges, tools, lathes, and fixtures at the Cumberland and Harper's Ferry shops, necessary to perform the increasing repairs to the engines and cars required at those stations, and in carrying into effect the requirements of the new organization of the service, in reference to a more equal distribution of repairs among the five principal stations upon the line—Baltimore, Frederick, Harper's Ferry, Cumberland and Washington. When at each of these points there is a shop, at which duplicate parts shall be kept and all current repairs done, leaving the more extensive renewals of the machinery to be still made at Baltimore, much time and power, now expended in getting disabled engines and cars to the latter place, will be saved, to the advantage of the service.

#### SUMMARY.

The whole expense of maintaining the locomotives, passenger and burden cars during the year, ending September 30th, 1847, has been

Upon the main stem.....	\$152,543 28
Deduct for increase in value of materials.....	5,866 18

And the actual cost of maintenance will be.....\$146,577 10  
Which is 41,992 79 greater than that of the preceding year.

Upon the Washington branch, ..	\$29,658 44
Add for decrease in value of materials.....	3,281 15

And the true cost of maintenance will be.....\$32,939 59

Which is 2,174 73 greater than that of the preceding year.

#### 31.—CONDUCT OF THE TRANSPORTATION.

The activity of this department, to which the operations of the two already treated of are subsidiary, has, in all its branches, been far greater than in any former year. The unprecedented demand upon the seaboard for produce and provisions of all kinds, caused a flow of them from the interior, such as had never been previously witnessed, and all the means at the company's command of transporting this immense and sudden accession to the eastward tonnage of the road proved, for a time, inadequate to the performance of the service required. The passenger business kept pace with that of the freight, although, to its accommodation, the means at the company's disposal were at all times equal, though frequently put into the fullest requisition.—

The whole movement upon the road during the past year, by steam and horse power together, is exhibited as follows, in comparison with that of the previous year. The tonnage embraces the company's materials and fuel, as properly entering into the comparison.

Year	Passengers carried mile in both directions.	Tons carried one mile.			Total.
		Eastward.	Westward.	Both Directions.	
1847	12,835,856	91,668,244	520,546	452,944	27,204,065
1846	10,700,960	10,550,560	074,487	796,216	16,491,263
Inc.	2,134,896	11,108,684	446,008	343,728	10,712,802

We here perceive that the increase in the tonnage was 66 1/2 per cent., and in the passengers, 20 per cent., in the space of a single year. The increase in 1847, it will be seen, was chiefly in the eastward movement of the products of the interior, which was 100 per cent. of that of the previous year, while the westward movement was apparently but 10 per cent. in advance of that of 46, and the intermediate miscellaneous transportation in both directions was less than in that year.

The extreme inequality of the trade in the two directions, has thus made a much larger force of machinery necessary to perform the transportation, than if there had been a nearer approach to reciprocity, and, as the ratio has stood during the past year, four tons have come eastward to one that has gone westward so that three-fourths of the motive power and cars have been producing no immediate useful effect during their westward trips. The necessity of returning the cars from Baltimore, as soon as possible to the points at which they were to be loaded, made the greatest expedition necessary in the discharge of their loads at this end of the road, and the delays unavoidably attendant upon the distribution of the produce through the city by horse power, rendered this a very difficult task. Trains of empty cars were therefore sent out in the evening (the tonnage trains having previously started in the morning only) and by this means the cars were kept in quicker circulation. To effect these rapid movements in contrary directions, in harmony with those of the heavy passenger business upon a single track, provided with few passing places, much of it of inferior construction, producing frequent accidents to the trains, has not been a light labor. During the great press of the produce business throughout last winter and spring, accumulations at all the depots necessarily took place, and much complaint was made, in the absence of a correct knowledge of the real embarrassments against which this company (in common with all the proprietors of internal improvements throughout the country) were struggling. The want of suitable depot accommodations at the numerous points of reception along the line, has also added to the inconveniences under which the public and the company have labored during the times of pressure in the trade. The remedies for these several deficiencies in the means of conducting the transportation, must be found in the completion of



the measures in progress—to renovate and improve the old part of the road, to enlarge gradually the stock of engines and cars—to run the trains so as to keep up a more uniform movement, and to obtain relief from the delays attendant upon the distribution of the trade through the city.

## EXPENSES OF TRANSPORTATION.

**Main Stem.**—The charges against this department of the service amount to \$197,134 40 for the year ending September 30th, 1847. The corresponding expenditures for the previous year was \$146,057 91—showing an increase of \$51,076 49, from which must be taken the sum of \$7,723 50, to allow for an increase in the stock of fuel on hand, leaving the actual increase of expenses \$43,352 99, or 29 per cent. The increase of business done being 66½ per cent, in freight and 20 per cent in passengers, which, when the relative expense of the freight and passenger transportation is considered (two passengers costing about as much as a ton of freight) would be equivalent to an average increase of business of about 55 per cent.—so that the advance in the expenses falls 26 per cent. within that of the business done.

Year.	WAGES.						Increase in 1847.
	Superintending agents and clerks.	Enginemen and firemen.	Conductors and brakemen.	Depot labor.	Fuel—coal and wood.	Oil, grease and cotton waste.	
1847	12,776 16	38,932 49	10,246 09	9,630 27	52,836 42	15,439 50	197,134 40
1846	11,173 60	28,632 38	13,971 87	8,700 38	37,687 82	9,757 62	146,057 91
Increase	\$1,602 56	\$10,300 11	\$6,274 22	\$930 89	\$15,048 60	\$5,681 88	\$51,076 49
1847							197,134 40
1846							146,057 91
Increase							51,076 49
Total expenses of transportation.							197,134 40
							146,057 91
Increase							51,076 49

An examination of the above synopsis of the transportation expenses of the two years will show that in all instances except that of

oil, the ratio of increase in expense is far within that of the increase in the business—The prices of oil and grease, the past year, have been 15 per cent higher than the year before. Hence the exception against these items.

**Washington Branch.**—The transportation of this road were, during the past year, \$29,364 45, from which should be deducted a credit of \$525 for increased stock of fuel—leaving \$28,839 45 as the actual outlay in this department, against \$26,546 59, the amount of the preceding year, and showing an advance upon that of the latter of \$2,292 86. This increase is due, altogether, to the increase in the prices of fire wood and oil, which has added to the expense of those articles, at least the amount of the difference stated.

Your attention is pointed to the item in the above table showing the cost of maintaining the horse power in the city. There are employed in the streets and at Mount Clare, the average number of 105 horses—of which 73 belong to the tonnage and 32 to the passenger business—the severity of the duty to which they are subjected is evidenced by the fact that an average of 12 of the former and 4 of the latter are always in the list of disabled; the wear and tear of the tonnage horses being 33½ per cent the greatest. The expense of this power has increased in a much slower proportion than the duty performed. Of the whole expense of \$35,517 78, the cost of carrying passengers is \$11,511 93, and of tonnage of \$24,005 85. In 1846, it was for passengers \$8,660 02, and tonnage \$21,534 38. Increase this year, for passengers \$2,851 91, and for tonnage \$2,471 47. The number of passengers carried one mile this year, was 180,273—last year, 130,000; increase 50,273 or 38½ per cent; while the increase in the expense was but 33 per cent.

The number of tons carried one mile this year was 317,133 (besides materials, etc., for the company)—last year 156,573; increase 160,560, or 103 per cent, while the increase of expense would appear to be but 11½ per cent. The cost per passenger per mile, in the year just closed, was 6 4/10 cents—and per ton per mile 7 6/10 cents—not including the company's materials, which are estimated as having amounted to 18,572 tons hauled one mile.

The expenses of transportation upon the *Washington branch* are necessarily much less subject to variation than those of the main stem. The chief business of the road, the carrying of passengers, is indeed very fluctuating, and there is no regular progressive increase except in that of tonnage, which is steadily, though slowly advancing. The number of trains run remains the same from year to year, and the cost of running them is not very materially effected, by the loads they carry.

Upon a general review of the operations and expenses of the transportation department during the past year, it must be apparent, that having reference to the results which its administration has produced, it has been conducted with energy and economy.

## 4th.—REVENUE, EXPENSES AND TRADE.

## Main Stem.

1. **Revenue.**—The receipts from the several sources are as follows, for the year ending September 30th, 1847; and those of the previous fiscal year are placed by the side of them, that the relations of each item may be seen.

	1846.	1847.	Increase.
Passengers in Main Stem trains.....	361,546 24	361,546 24	28,008 73
Passengers in Washington branch trains on 8 miles of main stem.....	43,966 90	43,966 90	7,133 35
Tonnage in Main Stem trains.....	\$403,812 44	\$403,812 44	\$35,232 09
Do. in Washington branch trains as above.....	628,923 51	628,923 51	183,757 51
Total passengers carried.....	18,986 97	18,986 97	696 79
Total tonnage transported.....	\$647,509 48	\$647,509 48	\$184,454 30
Mail transportation in Main Stem train.....	40,664 00	40,664 00	
Mail transportation Washington branch train as above.....	2,544 00	2,544 00	
Total mail transportation.....	\$43,208 00	\$43,208 00	
For use of cars upon Winchester and Potomac Railroad.....	3,922 91	3,922 91	132 15
Toll collected at Harper's Ferry viaduct.....	1,983 75	1,983 75	432 69
Rent of Pratt street depot to Philadelphia Railroad Company.....	1,500 00	1,500 00	
Total revenue from all sources.....	\$1,101,936 58	\$1,101,936 58	\$220,251 05

The revenue is thus seen to have reached the sum of \$1,101,936 58—exceeding that of the previous year \$220,251 05, or 25 per cent. of the latter.

Of this increase, five-sixths is due to the tonnage, and but one-sixth to the passenger business.

The increase in the revenue from tonnage has been mainly realized from produce, live stock and coal, transported eastwardly.

The increase of receipts from passengers has been chiefly upon the through travel, in connection with the stage lines west of Cumberland.

**Expenses.**—The expense of working the road is summed up as follows, under the heads already treated of, adding the item of "general expenses," not embraced under any one of them, and consisting of losses by fire and other accidents, salaries, house rent, law expenses, insurance, taxes and other incidentals:

1. Maintenance of road.....	\$215,046 64
2. Maintenance of machinery.....	146,577 10
3. Conduct of transportation.....	189,410 90
4. General expenses.....	14,877 08

Making an aggregate of.....\$565,911 72

The total expenses charged upon the books are \$590,828 98. The difference of \$29,917 26 is the increase in the estimated value of materials and fuel on hand, which has taken place during the year. A careful account is taken of the stock of all kinds at the close of each year, and thus the comparison is carried on from year to year, which is manifestly essential to a correct exhibit of the

absolute as well as relative expense of each year's operations.

The gross receipts of the year having been \$1,101,936 58, and the actual expenses \$565,911 72, the net earnings of the road were, consequently, \$536,024 86, which is  $7\frac{1}{2}$  per cent. upon the capital of \$7,000,000.

The expenses have been  $51\frac{1}{2}$  per cent. of the receipts, taking the account of each as it stands above. But if the part of the expenses consisting of permanent improvements, independent of allowances for depreciation, and, therefore, properly chargeable to capital, and amounting, on all accounts, to at least \$50,000, should be deducted from the apparent current expenses, the latter would be reduced to \$515,911 72,—forming but 46 8 10 per cent. of the receipts of the year.

#### WASHINGTON BRANCH.

The receipts of this road, for the year ending September 30th, 1837, were as follows:

From passengers.....	\$159,402 05
From tonnage.....	48,706 62
From mail.....	10,176 00

Total receipts from all sources,....\$218,284 67

The expenses, under the heads above treated of, are summed up as follows:

1. Maintenance of road,....	\$21,361 21
2. Maintenance of machinery 32,939 59	
3. Conduct of transportation..	28,839 43
4. General expenses.....	8,875 87
	92,016 19

Leaving an excess of receipts over expenditures of.....\$126,268 55

To show the real net revenue, the bonus paid to the state and amounting this year to \$39,528 30 must be deducted, which leaves but \$86,740 25 as the real profits of the work. This tax is not however in fact any part of the cost of working the road, but is an incidental adjunct to the improvement, and therefore in computing, professionally, the value of the Washington road as a line of railway it should be left out of view. Comparing then the receipts and expenses apart from this necessary, we see that the latter constitute but 42 per cent. of the former, and that the excess of the one over the other would yield  $7\frac{1}{2}$  per cent. upon the capital of \$1,650,000, invested in the work.

The excess of receipts over all expenses, including the state tax, shown by the account books, and exhibited in the statement of the treasurer is \$69,607 56, being \$2,867 31 more than the amount of \$86,740 25 above stated. The difference being due to the estimated decrease in the value of stock of materials, etc., of which the books do not take notice.

#### TRADE OF THE ROAD.

##### Main Stem.

The general movement of the trade of the road is indicated in the preceding statements, which show the tonnage in either direction, and that for each ton going westward there have been four coming eastward, during the past year. Of the eastward tonnage, the principal share has been contributed by flour and coal, the amounts of which, arriving in Baltimore, are shown as follows, as well as the other freight, classified under a few prominent heads.

Rec'd at Baltimore during the year.	Barrels.	Tons.
Flour from all points of the road.	579,870 1	62,599
Coal from Cumberland.....		50,259
Grain from all points.....		6,693
Live stock from all points.....		8,204
Provisions from all points.....		3,824
Meal, etc., from all points.....		1,967
Lard and butter from all points..		1,480
Whiskey from all points.....		700
Tobacco from all points.....	4,130 hds.	1,700
Iron from all points.....		8,855
Granite and soapstone.....		5,894
All other tonnage.....		6,282

Total tons of commodities of all kinds...158,466

This tonnage forms but that part of the eastward movement which reached Baltimore constituting however, of course, almost the whole amount of the trade eastward. Of the westward tonnage no classification has heretofore been made upon the company's records, and the keeping of a full and satisfactory one, would be attended with a good deal of trouble. It is intended however, to make such a division of the tonnage going westward as will show some of the chief articles returned to the interior, for the products sent by it to the seaboard.

In order to permit a comparison of the eastward trade over the road, in the principal staples during the successive years, since the opening of the road; a table is annexed, lettered F, containing a condensed exhibit of the tonnage arriving in Baltimore since the year 1831, by the Baltimore and Ohio Railroad. In reference to the coal trade, it may be observed, that the number of cars built for that trade, and not suited for other transportation, is sufficient for the delivery in Baltimore of 90,000 tons per annum, besides supplying the local demand of the line, which is considerable. It may be expected, therefore, that during the coming year nearly twice as much Cumberland coal will be brought to Baltimore as reached it in the year just expired. The clear profit upon the conveyance of this amount of coal will be not less than from \$50,000 to \$60,000, and were the company in a position to increase its machinery, for the conveyance of this branch of their trade, to the extent desired and urged by the parties engaged in it, the revenue from this source might be largely multiplied. Until, however, the means of reaching tide water with this trade is facilitated, by the proposed extension to the south side of the harbor, its further increase is hardly to be desired, either on the part of the company or those in the business.

It is stated above that the principal increase in passengers has been in the class of through travellers, to and from points east and west of Baltimore and Cumberland. The number of passengers carried in the cars during the past year ..... 288,674 1/2  
While the number for the previous year was ..... 280,264 1/2

So that the increase was ..... 8,410

The number of passengers carried one mile this year, as before stated, 12,835,856, and last year 10,700,960—the increase being 2,134,896. The number of miles travelled by each of the additional passengers of the present year must then have averaged 254,

the one half of which for each direction east and west is 127 miles, but fifty miles short of the whole length of the road. The number of passengers carried in each direction between Baltimore and Philadelphia, in the east, and Wheeling and Pittsburg on the west, is as follows:

Westward—Philadelphia to Pittsburg..	8,061
Baltimore to do.....	5,533
Total to Pittsburg.....	13,594
Philadelphia to Wheeling..	4,050
Baltimore to do.....	4,372
Total to Wheeling..	8,422
Total through passengers westward..	22,016
Eastward—Pittsburg to Philadelphia..	6,977
Do. to Baltimore.....	3,219
Total from Pittsburg..	10,196
Wheeling to Philadelphia..	5,798
Do. to Baltimore.....	3,379
Total from Wheeling..	9,177
Total through passengers eastward..	19,373
Total through passengers eastward and westward.....	41,389

From this statement it would then appear, that of the whole number of 41,389 through passengers 16,503 have started from or stopped at Baltimore; and 24,886 have come from or gone to Philadelphia. The inferences to be drawn from these facts must be accompanied by with proper allowances for the travellers, who although starting from or bound to Philadelphia, halt in Baltimore, and for those doing the same by Baltimore have come from or are going to Philadelphia.—The facts may, however, be useful in showing the course of travel over the line.

The revenue derived from western passengers has been \$194,502—being 48 per cent. of the entire receipts from passengers during the year. Analogous to the class of western passengers over the main stem is that of southern passengers over the Washington branch, who also contribute to the travel and revenue of the former.

Their number during the year just ended was,  
Southwardly.....8,957  
Northwardly.....8,081

Making a total in both directions of.....17,038  
And yielding a clear revenue to the main stem of \$4,361 60. The remaining travel upon the Washington branch gives a clear revenue to the main stem of 30,323 68—From the local travel of the main road, therefore, there has been derived a revenue of 174,625 16; the whole revenue from passengers, amounting as before stated to 403,812 44.

#### WASHINGTON BRANCH.

**Tonnage.**—The trade upon this road, in the direction of Washington, consists almost entirely of merchandise going to that city. Limestone, to the extent of some 3000 tons per annum, is conveyed from Baltimore to the Annapolis junction, for the Patuxent iron works. In the direction of Baltimore the tonnage is principally iron ore and iron, from the line of the road. The Laurel Factory is a contributor to the trade in both directions.

The number of tons drawn one mile on this road, during the past year, was, eastward—



ly. 551,815—and westwardly 494,200—total 1,046,015 tons one mile, exclusive of materials for the company, amounting to 48,807 tons; and making an aggregate of 1,094,822 tons. The freight business upon this road must continue steadily to increase until it bears a much larger proportion to its passenger business than at present. The revenue from freight in 1847, is \$1,502 08 greater than in 1846.

**Passengers.**—The number of passengers carried upon this road during the past year, has been 151,683 for various distances; equivalent to the conveyance of 3,834,701, a distance of one mile. Of these the through southern passengers numbered 17,038 over the whole road—equal to 528,178, a distance of one mile, and constituting about 1-7 of the whole number; showing that it is very mainly the local travel which sustains this road. The revenue from passengers in 1847, is \$10,169 85 less than that of 1846; the national fair, held in May of that year, having itself yielded a revenue of about \$10,000,—and the occurrence of such extraordinary occasions of travel upon this road must always render its income from passengers unsteady.

Having thus gone over the several subjects indicated in the commencement of this report, I conclude what seems necessary to be said in regard to the "working of the road" with a reference to the accompanying tabular statement, lettered G, in which the several results above set forth are exhibited in a condensed form, with such other statements and deductions as seem suitable to be presented. This table will form a continuation, in a somewhat different form, of the series of statements of the same kind heretofore attached to the annual report, and prepared by the officer formerly in charge of the maintenance of the road and machinery. A more condensed table, lettered H, and showing the same results on the Washington branch, is also appended.

A statement of the business, revenue, expenses and dividends of the company since the opening of the road in 1830, is also appended, lettered I, from which will be observed the progressive increase of its extent, operations and income. It will be seen that the aggregate profits upon the working of the road have amounted to \$3,037,617, of which \$1,089,138 have been paid in dividends to the stockholders, and \$1,948,509 has been reinvested in the work, in permanent additions and improvements, which have increased its value fully to that amount; so that the nominal capital of \$7,000,000 does not represent truly the worth of the property of the company, which has, in fact, cost the sum of \$8,498,509, and is fully worth that sum at this time, and prospectively much more. Of the details of this reinvestment, it is not now necessary to state more than that they consist of what has been paid for iron rails, for the road west of Harper's Ferry, for locomotive engines and cars, for the new track east of Harper's Ferry, and for numerous substantial and highly valuable improvements in bridges, depot buildings, work shops, water stations, and other parts or appurtenances of the road,

all of which remain as visible and tangible evidences that the portion of the income not directly given to the stockholders, has not been squandered and sunk, but is existing, and in truth, if not in appearance, yielding them interest. The comparison with the operations of other roads promised at the outset of this report I have thought it best to present in a condensed form in the statement annexed, lettered K, and an examination of which cannot fail to produce favorable impressions of the manner in which the Baltimore and Ohio Railroad, with all the disadvantages under which it is admitted to have labored, has been administered.

## II. The Reconstruction and Improvement of the old Road.

1. *The Laying of the new Track.*—It has been already stated under the head of "maintenance of road," that of the new track, by which the old plate rail is being replaced, there had been 41 miles laid upon the 1st of this October; thirty of which were laid last season, and eleven during the present. There remains to be laid twenty miles of the track authorized this year, and for which all the materials but the iron rails are fully provided. The rails are furnished by the Covington company at the Avalon works, upon the line of the road, where the delivery is made with the utmost convenience. The iron is of excellent quality and well rolled, and is placed in the track as fast as it is manufactured.

The part of the new track laid this year is in excellent adjustment, having been carefully put down upon a very firm foundation, for which the old stone track, (the sills of which are still mostly in their places,) has in part been made available, as a substitute for the under sill of timber. The ballasted horse path used in the early times of the work, when animal power was the only means of locomotion, is now also yielding a return for the expense of its construction by affording an excellent bed for the new structure.

2. *The Alterations in the Location of the Road bed.*—These improvements in the line, which were authorized and put under contract upon very favorable terms some weeks since, are, in part, progressing, although some delay has been experienced in procuring from the land owners the right to make them.—These difficulties will, it is hoped, be shortly removed, and this important work be permitted to progress without interruption, so as to be completed in the spring, and receive the new track which is to be laid upon them.

## III. The Extension of the Road.

1. *West of Cumberland.*—In June last, I received your instructions to locate the line of the road as far westward as the Maryland and Virginia state line, on the southern route towards the Ohio. Three parties of engineers were accordingly organized, one of which went into the field on the 1st of July, another about the middle of that month, and the third about the 1st of August. The first has been engaged between Cumberland and Westernport, 27 miles up the valley of the North branch, and has made careful locations of several lines in the town of Cumberland, and

extended a line up the Potomac to Fort hill, 13 miles distant. This party has also traced with care, several lines from points upon the finished road as far east of Cumberland as the mouth of Patterson's creek, 8 miles below across the Knoby mountain, with a view to cutting off the great bend of the river at Cumberland. A saving of ten miles of distance may be effected by the best of these routes. The relative grades, curves and cost, are not yet definitely known. This party has located a distance fully equal to that of the whole line to Westernport, and, having now united the two routes east of Fort hill, will continue the staking out of the route above that point, and complete it early in the coming winter.

The second party has been employed in the location between Westernport and the Backbone or main summit, and has had a very difficult line to run upon the mountain slopes of the very rugged ravines of Crabtree creek and Savage river. The progress of this party has been, consequently, very slow; and it has been further retarded by the prevalence of the almost perpetual rains of that humid region. The chief difficulties of this section of the route are, however, now overcome, and it is hoped that its preparation for contract may also be completed early in the winter.

The third party has been engaged upon the easy and beautiful part of the route lying westward from the summit through the glades and has completed its location, for a distance of upwards of 15 miles, to the State line, and is now extending it in Virginia to the head of Snowy creek, whence the descent to the valley of Cheat river commences.

The rigorous winter which prevails in that elevated district will not permit the advantageous prosecution of the surveys later in the season than the end of the present year, at which time it is believed that about sixty-five miles of the route from Cumberland west, will be prepared for contract.

The measures necessary to secure the right of way from the land owners have also been in active progress, under the management of the company's counsel in Alleghany county.

2. *East of Mount Clare.*—The new surveys directed by the recent order of the board in reference to the extension to tide water, are now being made, and their results will be reported so soon as the necessary lines can be run and estimates prepared.

In closing this report, I must express my regret that it has extended to so great a length; but upon reviewing what has been written, I have not been able to see in what particulars it could be curtailed, without impairing its value as an exhibit of the operations of the road, to which I have endeavored to give a form and arrangement that might make it useful for the present information of those interested in the work, as well as for future reference in the preparation of similar documents hereafter.

I am, sir, respectfully,  
Your obed't serv't,  
BENJ. H. LATROBE,  
Chief Engineer, acting as Gen. Supt.

**RAILROAD IRON.—500 TONS OF THE** latest and most approved pattern of T Rail—weighing about 63 lbs. per yard, shipped from England in October, and shortly expected. For sale by **BOORMAN, JOHNSTON & CO.,** 119 Greenwich St., New York.

**DEAN, PACKARD & MILLS,**

MANUFACTURERS OF ALL KINDS OF

**RAILROAD CARS,**

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished

at short notice; also, STEEL SPRINGS

of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,

ELIJAH PACKARD,

ISAAC MILLS,

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**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 32 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets, PHILADELPHIA.

**RAILROAD IRON.—THE NEW JERSEY** Iron Company, Boonton, N. J., are now making Railroad Bars, and are prepared to execute orders for any required pattern. Apply to

**FULLER & BROWN, Agents.**

No. 139 Greenwich, corner of Cedar street.

June 1, 1847.

10f

**CHILLED RAILROAD WHEELS.—THE** undersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

**A. WHITNEY & SON,**

Willow St. below 13th,

Nov. 10, 1847. [tf.] Philadelphia, Penna.

**LAP—WELDED WROUGHT IRON TUBES**

FOR

**TUBULAR BOILERS,**

FROM 1 1-4 TO 6 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

**THOMAS PROSSER,**

Patentee.

36 Plau street, New York.

**PATENT RAILROAD, SHIP AND BOAT** Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

**HENRY BURDEN, Agent.**

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by **JOHN A. ROEBLING, Civil Engineer,** Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition.

92v11y

**FRENCH AND BAIRD'S PATENT SPARK ARRESTER.**

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburg and Jackson Railroad, Vicksburg, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Stems, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. **FRENCH & BAIRD,**

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

•• The letters in the figures refer to the article given in the Journal of June, 1844.

ja45

**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. **JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y. The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merriitt, New York; J. H. Whitney, do.; E. J. Eting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**MACHINE WORKS OF ROGERS,** Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

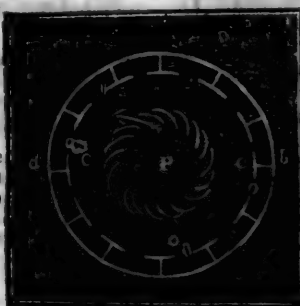
Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

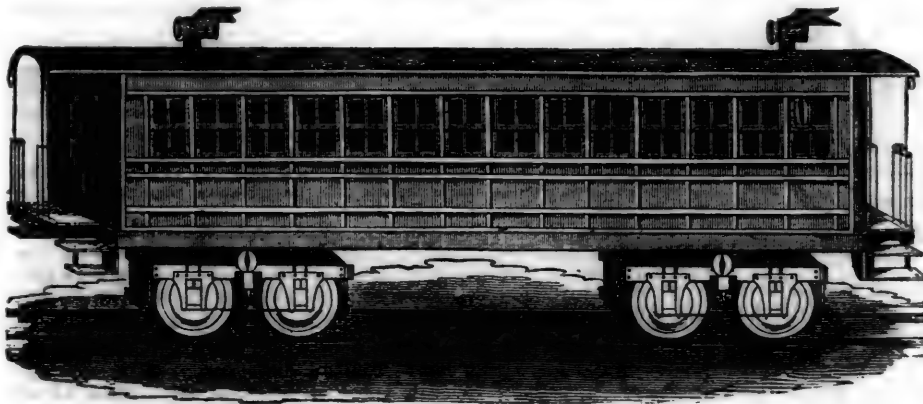
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CAR WORKS, CAMBRIDGEPORT, MASS.

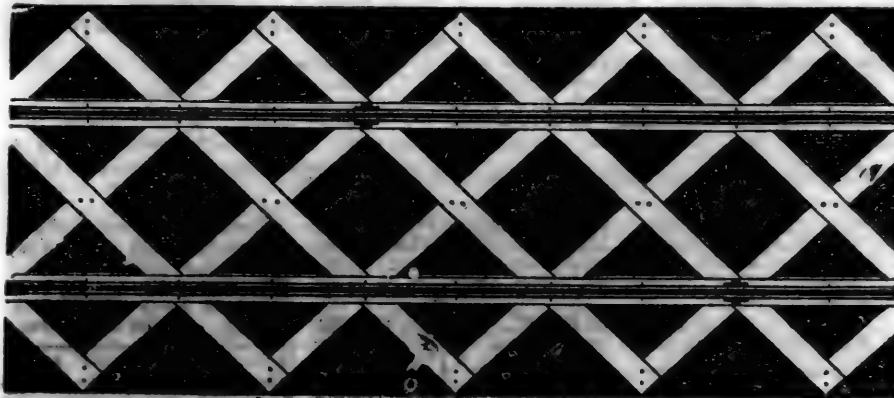


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes.

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

**THE UNDERSIGNED RESPECTFULLY** invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellys are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellys, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes

but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellys for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.	
4,224 Timbers, 11 ft. long, 3 x 6 inches =	
68,696 ft. b.m., at \$10 =	\$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. =	
4,403 ft. b.m., at \$13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts. =	101 25
Workmanship free of patent charge =	600 00

Cost of one mile including the laying of the Rail.....\$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.  
Civil Engineer and Patentee.  
No. 277 South Tenth St., Philadelphia.

ENGINEERS' AND SURVEYERS'  
INSTRUMENTS MADE BY  
EDMUND DRAPER,  
Surviving partner of  
STANCLIFFE & DRAPER.



No 23 Pear street,  
1y10 near Third,  
below Walnut,  
Philadelphia.



THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc.

ANDREW MENEELY.  
West Troy, May 12, 1847. 1y•21

**PIG AND BLOOM IRON.**—THE SUBSCRIBERS are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,  
12½ Vine St. Wharf, Philadelphia.

**RAILROAD IRON.**—THE "MONTGOMERY" Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to  
MURDOCK, LEAVITT & CO.,  
Agents.  
77 Pine St., New York.

1y48

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.** This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by  
JOHN W. LAWRENCE,  
142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 17

**RAILROAD IRON AND LOCOMOTIVE**  
Tyres imported to order and constantly on hand by  
A. & G. RALSTON  
Mar. 20½ 4 South Front St., Philadelphia.

**THE NEWCASTLE MANUFACTURING** Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

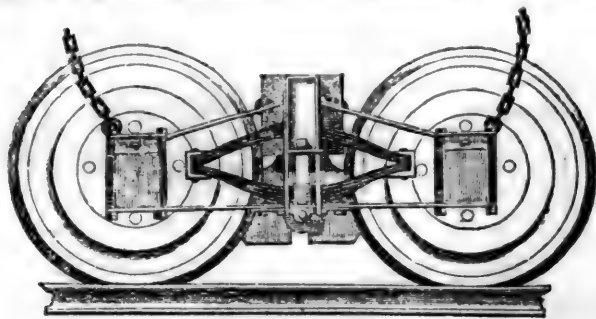
The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,  
a45 President of the Newcastle Manuf. Co.

**LOCOMOTIVE AND CAR AXLES.** The Subscribers are now prepared to receive orders for the well known and approved Reading Locomotive and Car Axles—drawn to any required pattern from Bloom Iron only. Address

SAM'L KIMBER & CO.,  
Willow Street Wharf,  
Philadelphia, Pa.

**RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER** having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its availability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East

**ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—** for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

**ALFRED L. KEMP,**  
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

WIRE ROPES.			HEMPEN ROPES.			CHAINS.		STRENGTH Tons.
Wire gauge number.	Circumference of rope.	Weight per fathom.	Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	
	INCH.	LBS. & OZ.	INCH.	LBS. & OZ.		LBS.	INCH.	
11	4½	13 5	10	24 -		50	15-16	20
13	3½	8 3	8½	16 -		27	11-16	13½
14	3¼	6 11	7½	12 8		17	9-16	10½
15	2½	5 2	6½	9 4		13½	1-2	7½
16	2¼	4 3	6	8 8		10½	7-16	7

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; proposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

**ELLICOTT & ABBOTT.**

Factory, 9th street, near Coates, cor. Melon st.

Office, No. 3 North 5th street,

1y25

Philadelphia, Pa.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

**G. A. NICOLLS,**

Reading, Pa.

ja45

river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846.

W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

(Signed,)

WILLIAM ROE, Supt of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845.

(Signed,)

G. A. NICOLL,

Supt. Transportation, etc. Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

(Signed,)

T. L. SMITH,

Jersey City, November 4, 1845.

N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot,

(Signed,)

JOHN LEACH,

Sup<sup>r</sup> Motive Power.

Jamaica November 12, 1845.

1y19

**THE SUBSCRIBERS, AGENTS FOR**

the sale of

Codorus,  
Glendon,  
Spring M. and  
Valley,

Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

**SAM'L KIMBER & CO.,**

50 North Wharves,

Jan. 14, 1846.

[1y4]

Philadelphia, Pa.

**TO RAILROAD COMPANIES AND MANUFACTURERS** of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined E. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

**THOMAS & EDMUND GEORGE,**

245 N. E. cor. 12th and Market sts., Philad., Pa.

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufacture: and for sale by

**MORRIS TASKER & MORRIS,**

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia.

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

**PETER COOPER** 17 Burling Slip.

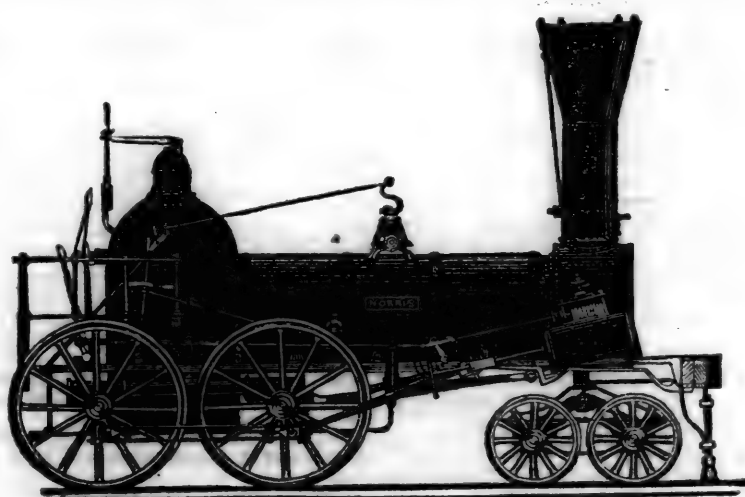
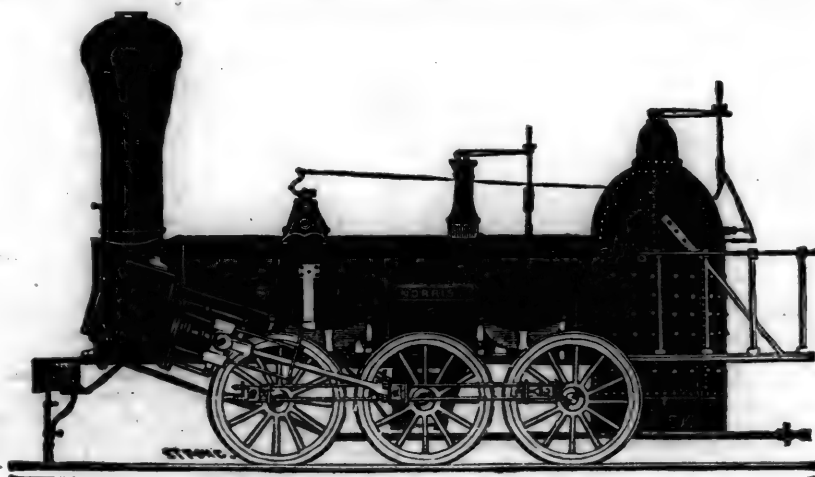
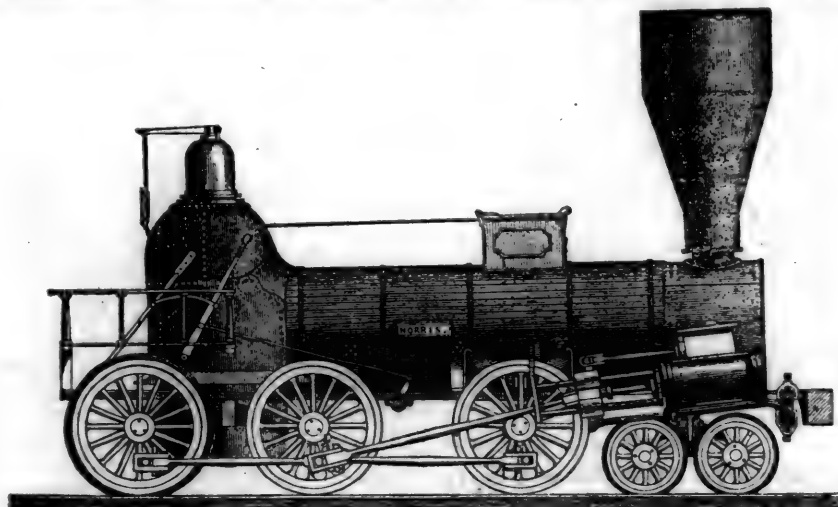
1y10

New York.



# NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



**M**ANUFACTURE to order Locomotive Steam Engines of every plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish. Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality. Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

**L**AP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 14 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

IRVING VAN WART,  
12 Platt street, New York.  
JOB CUTLER, Patentee.

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom. 284

**S**PRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 14 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, Agent,  
Albany Iron and Nail Works,

**T**HE SUBSCRIBERS ARE PREPARED TO execute orders at their Phoenix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported. 285

REEVES, BUCK & CO.,  
Philadelphia.  
ROBERT NICHOLS, Agent,  
No. 79 Water St., New York.

**P**ATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above Pipes, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly encased on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead. We also manufacture Basins and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York. 286

J. BALL & CO.

**K**EARNEY FIRE BRICK. P. W. BRINLEY, Manufacturer, Perth Amboy N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, mos. from delivery of brick on board. Refer to

James P. Allaire,	} New York.
Peter Cooper,	
Murdock, Leavitt & Co.	
J. Triplett & Son, Richmond, Va.	
J. R. Anderson, Tredegar Iron Works, Richmond, Va.	
J. Patton, Jr.	} Philadelphia, Pa.
Colwell & Co.	
J. M. L. & W. H. Scovill, Waterbury, Conn.	
N. E. Screw Co.	} Providence, R. I.
Eagle Screw Co.	
William Parker, Supt. Bost. and Wore. R. R.	
New Jersey Malleable Iron Co., Newark N. J.	
Gardiner, Harrison & Co. Newark, N. J.	

25,000 to 30,000 made weekly. 38

## PATERSON RAILROAD

Summer Arrangement.  
Commencing April 20th, 1847, the cars will leave  
Paterson at New York at  
8 o'clock a.m. 9 1/2 o'clock a.m.  
11 1/4 o'clock a.m. 12 1/4 o'clock p.m.  
4 o'clock p.m. 5 1/2 o'clock p.m.  
On Sunday.  
8 o'clock a.m. 9 1/2 o'clock a.m.  
4 o'clock p.m. 5 1/2 o'clock p.m.  
Office 75 Courtlandt St.





**BALTIMORE AND OHIO RAILROAD.**

**MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburg and Hancock, connecting daily each way with the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points \$7, and 4 cents per mile for less distances. Fare through to Wheeling \$11 and time about 36 hours, to Pittsburgh \$10, and time about 32 hours. Through tickets from Philadelphia to Wheeling \$13, to Pittsburgh \$13. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

**WASHINGTON BRANCH.**

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare \$1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**LITTLE MIAMI RAILROAD COMPANY.**

Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad 84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road 32 "

From Bellefontaine to Sandusky city by railroad 102 "

**FARE**—From Cincinnati to Lebanon \$1 00

" " " Xenia 1 50

" " " Springfield 2 00

" " " Columbus 4 00

" " " Sandusky city 7 00

The Passenger trains run in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every \$500 in value over that amount.

476 W. H. CLEMENT, Sup't.

**BALTIMORE AND SUSQUEHANNA**

Railroad.—Reduction of Fare. Morning and Afternoon Trains between Balti-

more and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at 9 a.m. and 3½ p.m.  
Arrives at 9 a.m. and 6½ p.m.  
Leaves York at 5 a.m. and 3 p.m.  
Arrives at 12½ p.m. and 8 p.m.  
Leaves York for Columbia at 1½ p.m. and 8 a.m.  
Leaves Columbia for York at 8 a.m. and 2 p.m.

**FARE.**

Fare to York \$1 50  
" Wrightsville 2 00  
" Columbia 2 12½

Way points in proportion.

**PITTSBURG, GETTYSBURG AND HARRISBURG.**

Through tickets to Pittsburg via stage to Harrisburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5½ p.m.

Returning, leaves Owing's Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

31 ly Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35 ly

**CENTRAL AND MACON AND WESTERN**

Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

Savannah to Macon—Central Railroad 190 Miles.

Macon to Atlanta—Macon and Western 101

Atlanta to Oothcaloga—Western and Atlantic 80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings \$0 50

Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones 0 50

On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot 0 30

Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot 0 20 pr. 100 lbs. 35

Crockery, per cubic foot 0 15 " 35

Molasses and Oil, per hhd., (smaller casks in proportion) 9 00 12 50

Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each 1 25 1 50

Ploughs, (small,) and Wheelbarrows 0 80 1 05

Salt, per Liverpool Sack 0 70 0 95

Passage—Savannah to Atlanta, \$10; Children, under 12 years of age, half price, Savannah to Macon, \$7.

Goods consigned to the subscriber will be forwarded free of Commissions.

Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, Forwarding Agent, C. R. R. Savannah, Aug. 15th, 1846. 1y34

**CENTRAL RAILROAD—FROM SAVANNAH**

to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight.

Rates of Passage, \$8 00. Freight—

On weight goods generally 50 cts. per hundred.

On measurement goods 13 cts. per cubic ft.

On brls. wet (except molasses and oil) \$1 50 per barrel.

On brls. dry (except lime) 80 cts. per barrel.

On iron in pigs or bars, castings for mills, and unboxed machinery 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons \$5 00 per hhd.

On molasses and oil \$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE, y40 Gen'l. Supt. Transportation.

**SOUTH CAROLINA RAILROAD.**

A Passenger Train runs daily from Charleston, on the arrival of the boats from

Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia 29 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

**THE WESTERN AND ATLANTIC**

Railroad.—This Road is now in operation to Oothcaloga; a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT, Chief Engineer.

Atlanta, Georgia, April 16th, 1846. 1y1

**NEW YORK AND PHILADELPHIA RAILROAD**

line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line 9 o'clock a.m.

Mail pilot line 4½ p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

**FARE BETWEEN NEW YORK & PHILA.**

First class cars \$4 00

Second class cars 3 00

Passengers will procure their Tickets at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use.

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m., and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Saturdays only at 10 p.m.—being a continuation of the line from New York.

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# PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

	Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50 and \$3.00		
" " Reading,	58	2.25 and 1.90		
" " Pottsville	34	1.40 and 1.20		

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore... 8 a.m. and 10 p.m.  
Baltimore for Philadelphia... 9 a.m. and 8 p.m.

Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3 p.m. No line on Sun-Leave Baltimore at 3 p.m. day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., mail, 12 p.m., 4 p.m., 7 p.m., 10 p.m. mail. Wilmington to Philadelphia, 7 a.m., 1 p.m., mail, 4 p.m., 7 p.m., 12 p.m., night mail.

J. R. TRIMBLE, Engineer and General Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA.—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO DALTON, 100 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga.—32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

Between Augusta and Dalton, 271 miles. Between Charleston and Dalton, 408 miles.

1st class. Boxes of Hats, Bonnets, and Furniture, per cubic foot. \$0 18 \$0 28

2d class. Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per 100 lbs. 1 00 1 50

3d class. Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc. 0 60 0 85

4th class. Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. 0 40 0 65

Cotton, per 100 lbs. 0 45 0 7

Molasses, per hoghead. 8 50 13 50

" " barrel. 2 50 4 25

Salt per bushel. 0 18 0 18

Salt per Liverpool sack. 0 63 0 63

Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows. 0 75 1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad & Co. will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS, Supt. of Transportation.

Augusta, Ga., July 15, 1847.

# RATES OF FREIGHT

On CHANDLER'S Through Transportation Line, between Charleston, S. C., or Savannah, Ga., and Decatur, Ala., and Knoxville, Tenn., and all intermediate points on the Tennessee River, viz:

Between Macon and Decatur and intermediate points.	1 25	1 54	1 10	1 05	0 81	0 86
and Knoxville & intermediate points	0 24	1 54	1 10	1 05	0 76	0 81
and Chattanooga.					0 61	0 66

Between Augusta and Decatur and intermediate points.	30 21	1 70	1 15	0 85	0 90
and Knoxville & intermediate points.	30 21	1 70	1 20	0 80	0 85
and Chattanooga.				0 65	

Between Charleston or Savannah and Decatur and intermediate points.	30 32	2 20	1 35	1 05	1 10
and Knoxville & intermediate points.	30 32	2 20	1 40	1 00	1 05
and Chattanooga.				0 85	

1st class.—Boxes of Hats, Bonnets and Furniture per foot.	1st class.—Boxes and Bales of Dry Goods, Shoes, Saddlery, Glass, Paints, Oils, (in cans) Drugs, Confectionaries, Shovels, Spades, Scythes, Smiths' Bellows, Baskets, Tubes, Sifters, Brooms and other light articles, per 100 lbs.	3d class.—Molasses, Sugar, Coffee, Liquor, Bagging, Rope, Cheese, Tobacco, Leather, Feathers, Hides, Wool, Copper, Tin, Sheet-iron Nails, Casks, or Crates of Crockery, Hardware, and other heavy articles not enumerated below.	4th class.—Flour, Bacon, (in casks or boxes) Pork, Beef, Lard, Tallow, Butter, Beeswax, Bales of Rags, Ginseng, Green and Dried Fruit, (in casks or sacks) Pig-iron and Linseed Oil, per 100 lbs.	Cotton. Per 100 lbs.
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Merchandise shipped from any of the northern ports, must be consigned to R. R. AGENT, CHARLESTON, S. C., or R. R. AGENT, SAVANNAH, GA.: and every package must be marked, care of B. CHANDLER, Chattanooga.

Charges will accompany the goods, and be collected by the boats on the Tennessee river, when delivered to the owner or consignee.

No preference in the way of despatch, will be given to any produce intended for their line, but each lot will be sent off as it is received.

The warehouse of the undersigned will be enlarged during the summer, and an apparatus attached for hoisting or lowering freight to the river, without soil or injury.

He will have a train of wagons under his entire control, sufficient to conduct the fall business with great despatch.

B. CHANDLER, Chattanooga, Tenn., July 1, 1847.

# REGULAR RATES BETWEEN ATLANTA AND CHARLESTON OR SAVANNAH.

First class, per foot.	\$0 20
Second class, per 100 lbs.	1 20
Cotton, per 100 lbs.	0 55
Third class, per 100 lbs.	0 60
Fourth class, per 100 lbs.	0 50

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